THE

NORTH AMERICAN REVIEW.

OCTOBER, 1880.

No. 287.

Tros Tyriusque mihi nullo discrimine agetur.

NEW YORK:
D. APPLETON AND COMPANY.
1880.

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1880.

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No. CCLXXXVII.

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THE DEMOCRATIC PARTY JUDGED BY ITS HISTORY.

THE time is far distant when the people of this country can be persuaded to judge a political party by its platform and professions, without reference to its practices and history. Having been taught this lesson in the severe school of experience, the Democratic party is now earnestly striving to unload its history; to cast off its old and bad character. Unfortunately, it makes no satisfactory effort to substitute, in place of the old one, a new history which will be beneficial to the country or creditable to itself, or to build up such a new character as can only be done by a complete change of conduct.

The Democratic party of to-day is substantially the Democratic party of 1860. It had a solid South then; it has a solid South now. It rallied around its banners then the great mass of the dangerous classes in the large cities; it rallies them still. The draft-rioters of 1863 in the city of New York were Democrats; those who survive are still Democrats. The Democratic party in 1860 counted for its success upon the States of New York, New Jersey, Connecticut, and Indiana, to add to its solid South; it counts upon those States still.

In 1860 it asserted the sovereignty of the States, and denied the right of coercion; in 1880 it, to all intents and purposes, announces

the same doctrine in its denial of the authority of the General Government to enforce its laws, even after their constitutional validity has been affirmed by the Supreme Court of the United States.

Time has made ravages in its ranks, but nevertheless its membership is practically the same to-day as in 1860. Toombs, Jefferson Davis, Hampton, Hill, Gordon, and Lamar, were among the leaders of the Democratic party South in 1860; they are to-day. Hancock, Seymour, Bayard, English, Thurman, and Ben Butler were among the leaders of the Democratic party North in 1860; and they are so still. The rank and file remain substantially the same. Occasionally a new recruit wanders in from the Republican party; but, in the main, the places made vacant by decease or casualties are made good by immigration and by the natural increase of population in the quarters where Democratic majorities are usually found.

In 1856 the Democratic party declared that "Congress has no power to charter a national bank; that we believe such an institution one of deadly hostility to the best interests of the country, dangerous to our republican institutions and the liberties of the people, and calculated to place the business of the country within the control of a centralized money power and above the laws and the will of the people." It affirms this doctrine in 1880, for its platform asserts, "We pledge ourselves anew to the constitutional doctrines and traditions of the Democratic party."

In its platform of 1856 it resolves: "That the Democratic party will faithfully abide by and uphold the principles laid down in the Kentucky and Virginia resolutions of 1798, and in the report of Mr. Madison to the Virginia Legislature in 1799; that it adopts those principles, as constituting one of the main foundations of its political creed, and is resolved to carry them out in their obvious meaning and import." Having pledged itself anew to its constitutional doctrines and traditions, the conclusion is inevitable that the Democratic party of to-day is as thoroughly committed to the doctrines of "State sovereignty" as it has ever been. Endorsing those doctrines in 1856, as "constituting one of the main foundations of its political creed," and resolving to "carry them out in their obvious meaning and import," it renews that pledge in 1880. In 1860 both branches of the Democratic party reaffirmed the platform of 1856.

In 1864 it resolved, "That, in the future, as in the past, we will adhere with unswerving fidelity to the Union under the Constitu-

tion." It also more specifically sets forth its doctrines and purposes in the resolution declaring "That the aim and object of the Democratic party is to preserve the Federal Union and the rights of the States unimpaired."

Making practical application of its doctrines, it resolved "That this Convention does explicitly declare, as the sense of the American people, that after four years of failure to restore the Union by the experiment of war, during which, under the pretense of a military necessity or war-power higher than the Constitution, the Constitution itself has been disregarded in every part, and public liberty and private right alike trodden down, and the material prosperity of the country essentially impaired, justice, humanity, liberty, and the public welfare demand that immediate efforts be made for a cessation of hostilities with a view to the ultimate convention of the States, or other peaceable means, to the end that at the earliest practicable moment peace may be restored on the basis of the Federal Union of the States."

It will not escape observation that, in its platform of 1864, the Democratic party was entirely silent as to the right of the Government to prosecute the war for its own preservation. It reaffirmed the State-sovereignty ideas of its previous platforms; it denounced the measures which the Government employed for the suppression of rebellion; it declared the war an "experiment," and that experiment a "failure"; it demanded a cessation of hostilities and a restoration of peace on a basis consistent with its old doctrines. Unchanged in spirit and policy, the Democratic party in 1880 pledges itself anew to its "constitutional doctrines and traditions."

The courage, patriotism, and endurance of the people answered the Democratic platform of 1864, crushed the rebellion, and defeated its armies. The war was not a failure. The work of reconstruction followed, and, looking to peace and security for the future, the loyal masses determined that the Union should be restored upon a basis that would secure to all its citizens perfect equality of political privileges and immunities; an unmistakable denial of the Democratic doctrine of State sovereignty, a denial of the right of secession, and the extirpation of slavery.

True to its history and to its "constitutional doctrines and traditions," the Democratic party opposed this method of reconstruction. It demanded in the platform for 1868 "Immediate restoration of all the States to their rights in the Union under the Constitution, and of civil government to the American people."

It emphasized its general demand by specific denunciations and declarations. It resolved that any attempt by Congress to interfere with any State in regulating the suffrage of its citizens "is a flagrant usurpation of power which can find no warrant in the Constitution, . . . and that we regard the reconstruction acts (so called) of Congress, as such, as usurpations, and unconstitutional, revolutionary, and void."

It indulged in the most gloomy forebodings as to the future if the reconstruction policy were pursued, and, speaking of Congress, held this solemn language: "Under its repeated assaults, the pillars of the government are rocking on their base, and, should it succeed in November next and inaugurate its President, we will meet as a subjected and conquered people amid the ruins of liberty and the scattered fragments of the Constitution."

It concluded its declarations, denunciations, and resolutions concerning the aggressive measures of Congress and its dismal lamentations over the frightful calamities impending in the future by an unqualified endorsement of Andrew Johnson in these words: "That the President of the United States, Andrew Johnson, in exercising the power of his high office in resisting the aggressions of Congress upon the constitutional rights of the States and the people, is entitled to the gratitude of the whole American people, and in behalf of the Democratic party we tender him our thanks for his efforts in that regard."

To all these doctrines the Democratic party has in the year 1880 pledged itself anew with especial emphasis, for it has placed at the head of its ticket one who was in full sympathy with that platform; who so expressed himself at the time of its adoption by the Democratic Convention; who helped to make up the history out of which the platform itself was constructed; who in New Orleans assisted Andrew Johnson in resisting the "aggressions of Congress"; who attempted to nullify the reconstruction measures, which this platform denounced as usurpations, unconstitutional, revolutionary, and void; who, in furtherance of that scheme, revoked the policy of General Sheridan; who left the field of duty, to which he had been assigned by Andrew Johnson, in disgust, because General Grant stood behind him and revoked him and his policy; who endeavored to restore rebel civil authorities in a State in which Congress declared "no legal State government or adequate protection for life or property" then existed; and who in most vehement language denounced any one who assumed that he did not thoroughly

concur in and endorse this platform, upon which he (General Winfield Scott Hancock) declared that he unqualifiedly stood.

These declarations of principles, thus from time to time made by the Democratic party, are emphasized by the action of that party in Congress upon all measures looking to the reconstruction of the Union upon a solid and just foundation. That party opposed the fourteenth constitutional amendment; for in the vote upon that amendment in the Senate every Democrat voted nay, and in the House the negative vote was a solid Democratic one. The reconstruction acts were opposed by the Democratic party by a solid party vote. It also opposed the fifteenth constitutional amendment. The vote stood—in the Senate, yeas thirty-nine, all Republicans; nays, thirteen, all Democrats, including James R. Doolittle: in the House, nays forty-four, all Democrats.

These amendments having been adopted, it steadily and solidly opposed all legislation looking to their enforcement. The enforcement bill passed the Senate May, 1870, encountering there a solid Democratic opposition, and also a solid Democratic opposition in the House. It has repeatedly refused to affirm the validity of the fourteenth and fifteenth constitutional amendments. This steady and persistent opposition to those great measures has extended to the States. The Democratic Legislatures of the States of New York and Indiana withdrew the previous ratification by preceding Republican Legislatures of those amendments. In 1871 a resolution reciting the action of the Indiana Democratic Legislature, and reaffirming the validity of those amendments, encountered in the House a negative vote of seventy-six, all Democrats, and that party also opposed by a solid vote the Ku-klux and amendatory enforcement acts.

In 1872 but four Democrats could be found in the House to vote for a resolution ratifying the validity of those amendments. In 1875 it opposed by a solid party vote in the House and in the Senate the supplementary civil rights bill; and in National Convention assembled in 1880 it declares, "We pledge ourselves anew to the constitutional doctrines and traditions of the Democratic party as illustrated by the teaching and example of a long line of Democratic patriots and statesmen."

On these great questions the Democratic party is, from its history, doctrines, and traditions, shown to have been, and to be, reactionary and revolutionary.

Denouncing the reconstruction measures in 1868 as usurpations, revolutionary, unconstitutional, and void, and renewing its pledge

to its former doctrines and traditions in 1880, it is fair to assume that, if the opportunity presented by an enlargement of the Supreme Court to have that doctrine judicially declared unconstitutional, the Democratic party would avail itself of such an opportunity, and wreck not only those reconstruction measures, but the constitutional amendments which have their foundation upon them. This is no merely imaginary peril; we are abundantly forewarned. The havoc which would come from the successful carrying out of Democratic doctrines and traditions, involving all business interests, all legitimate enterprises in ruin, is too obvious to require comment. In 1872, made wiser by long-continued defeats, the Democratic party undertook to conceal its heretical notions of State sovereignty under the jingling phraseology of home rule and local self-government. Repudiated in 1872 and again in 1876, in its platform in 1880 it is content to declare in general terms, "Opposition to centralizationism and to that dangerous spirit of encroachment which tend to consolidate the powers of all the departments in one, and thus to create, whatever be the form of government, a real despotism"; and again, by its third plank, for "home rule." These are merely different coverings for the same idea, and taken in connection with a solid South—a South made solid by midnight raids, by a system of terrorism which drives all opposition from the polls, or by a fraudulent count which rifles the ballot-box after the vote is deposited—leave no room to doubt that the Democratic party of today is as dangerous in spirit and purpose to the best interests of the country as it has ever been.

Its record on financial questions has been continuously bad. I have noted the fact that in 1856 it declared against a national bank and denied the power of Congress to charter one. I may add that during the war it opposed all schemes for the creation of the national currency—the greenback and the national-bank note; that in Congress it denounced both as unconstitutional; that it has been a constant menace to the public credit; and that at the first opportunity which presented after the close of the war, in its National Convention in 1868, it demanded a line of policy which, had it been pursued, would have involved the country in the crime and covered it with the shame of repudiation. It demanded the payment of the public debt of the United States as rapidly as practicable, and yet declared, "Where the obligations of the Government do not expressly state upon their face, or the law made under which they were issued does not provide they shall be paid in coin, they ought

in right and justice to be paid in the lawful money of the United States," thus demanding the payment of the national debt in greenbacks. It also demanded equal "taxation of every species of property according to its real value, including Government bonds and other public securities." Upon this issue it went before the people in 1868 and was defeated; and this suicidal and dishonest doctrine received the hearty and unqualified endorsement and approval of their present candidate for President, General Winfield Scott Hancock.

In 1876 Mr. Tilden took charge of the "literary remains" of the Democratic party, and manufactured a platform which could be made available at the North, embodying in it some sound financial views, but denouncing the Republican party as being guilty of impeding resumption. The rank and file of the party understood the purpose of the platform perfectly well, and were not deceived or misled by it, and, in various States in which their State Conventions were held after their national platform had been adopted, they demanded the immediate repeal of the resumption act. The doctrines of the party on financial questions should be sought in the action of the representatives of that party on those questions in Congress.

In 1869 the public credit bill was opposed in Congress by the nearly solid vote of the Democratic party. In January, 1876, the bill to repeal the resumption act received one hundred and twelve votes, all Democrats but one. In June, 1876, as a rider to the civil appropriation bill, an amendment repealing the resumption act received solid Democratic support. Evidently the party had not been converted by its platform. In August, 1876, a measure to repeal the fixing of the time for resumption received in the House one hundred and six votes, all Democrats but three. And as late as 1878, in very many States, Democratic Conventions demanded the immediate repeal of the resumption act.

These are the doctrines of the party, not merely as declared by its representatives, but as crystallized into action; and in 1880 the party, in National Convention assembled, declares: "We pledge ourselves anew to the constitutional doctrines and traditions of the Democratic party as illustrated by the teaching and example of a long line of Democratic statesmen and patriots."

It makes in its platform of 1880 high-sounding pretensions of reform, and claims to have reduced the public expenditures forty millions of dollars per year. But the methods by which this pre-

tended reduction of expenditures has been effected are, when properly considered, gross extravagances. It has reduced the army and cut down the pay of its officers; it has refused to make appropriations for the payment of judgments against the United States—thus making no real reduction in expenditures, for these judgments must ultimately be paid; it has refused to make appropriations for the payment of the expenses of our Federal courts, thus in very many districts throughout the country reducing us to the necessity of adjourning courts from time to time, because no means have been furnished to pay juries or defray the ordinary court expenses; it has refused to make appropriations to finish uncompleted public buildings, thus in the long run increasing the expenditures rather than diminishing them; it has cut down the service in the Department of the Interior, and other departments, to such an extent that business in the Patent-Office and in the Pension Bureau is greatly in arrears; it has refused to make adequate appropriation for the revenue-cutter service; it has refused to make adequate appropriations for the repair and protection of navy-yards, stations, armories, and arsenals; it has refused to make adequate appropriations for lighthouses, beacons, and fog-stations. These were not wise and economical reductions of public expenditures; they were wasteful and demagogical extravagances. In the mean time the volume of Southern claims for losses during the war has multiplied, and the demands made by the South for appropriations for the improvement of their rivers, and for other purposes, are becoming more and more vehement.

Their platform calls for a free ballot, and General Hancock asserts that "neither fraud nor force must be allowed to subvert the rights of the people"; that "the bayonet is not a fit instrument for collecting the votes of freemen"; and that "it is only by a full vote, free ballot, and fair count that the people can rule in fact, as required by the theory of our Government." This is certainly sound doctrine, but he should apply it to his own party—the party of which he is to-day the head and representative. There is no free ballot in the South, from which he confidently expects 138 electoral votes.

In 1872 the Republican vote of Alabama was 90,272; in 1878 it was nothing. In 1872 the Republican vote of Arkansas was 41,373; in 1878 it was 115. In 1872 the Republican vote of Mississippi was 82,175; in 1878 it was 1,168. These enormous reductions of the Republican vote can not be attributed to the conversion of Republicans through the agency of Mr. Tilden's Literary Bureau, or by le-

gitimate methods. That vote was reduced by terrorism, by violence, by fraud. The Democratic majority in the State of Alabama, in the election recently held there, is returned at 92,000; but this, all concede, is larger than the entire Democratic vote of the State. Surely, in the language of General Hancock, "it is only by a full vote, free ballot, and fair count that the people can rule in fact." But here are instances where upon one side there is no vote; where upon one side the ballot is fettered; where upon one side the ballot is not counted at all. Ordinarily the bayonet is not a fit instrument for collecting the votes of freemen, but the constitutional amendments guarantee this free vote, and provide that Congress shall enforce the provisions of those articles by appropriate legislation. If the ballot can be gathered in no other way than by the bayonet, I know of no better use to which the bayonet can be devoted. And, if the ballot-box is surrounded by men organized and armed to prevent the casting of the ballot, the bayonet will be employed for a very lofty purpose if used to prick those armed men into a proper appreciation of the fact that the national guarantee of the free ballot must be respected and must be obeyed.

So far as the industrial interests of the country are concerned, the Democratic platform of 1880 voices the long-known and well-understood ideas of the party. It hates protection, it has always opposed it, and in its present platform it speaks unqualifiedly for a tariff for *revenue only*. That General Hancock is in full accord with this doctrine of the party is evident from his letter of acceptance, for he says, "The principles enumerated by the Convention are those I have cherished in the past, and shall endeavor to maintain in the future." The Democratic Convention enumerated its principles, and under the fourth enumeration is found the doctrine of a tariff for *revenue only*. General Hancock declares that this principle he has "cherished in the past," and further avers that he will "endeavor to maintain it in the future."

The position of General Garfield upon this question is outspoken, clear, and unmistakable. From 1866 down to the present time he has been a steady and intelligent friend of protection to American industries. He has exhibited this friendship to this great interest not merely by his speeches, but by his votes. He joined with other Republican members of the Committee of Ways and Means in a minority report opposing Mr. Wood's tariff bill, and his votes during the last session of Congress have always been found on that committee in harmony with his position.

General Hancock declares in his letter of acceptance that the constitutional amendments are inviolable, but he will hardly undertake to declare that he would veto any measure which a Democratic majority might pass for the enlargement of the Supreme Court, or that he would veto any measure which the same party might pass repealing the laws now on the statute-book for the enforcement of those amendments. With the Supreme Court thus enlarged and those statutes repealed, the constitutional amendments would be (as every one knows) nullities. Declaring himself to be in favor of a free ballot, he must be quite well aware that his party in Congress has repeatedly sought the repeal of the election laws, by which alone can anything approximating a free ballot and a fair count be secured in our great cities in the North, through which alone can the perpetration of gross frauds in the ballot-box in the great Northern cities be prevented. The solid South does not desire the repeal of those election laws for its own purposes — the shot-gun, the midnight raid, and the fraudulent count have sufficiently nullified those laws there. Their repeal is demanded, however, by the Democratic party, in order that the States of New York, New Jersey, and Connecticut may be added to the solid South. And surely General Hancock will not undertake to say that, in the event of his election, should those statutes be repealed, he will veto such repealing measures. But without such veto we should have neither a free ballot nor a fair count.

In view of the history of the Democratic party, which I have thus hurriedly traced, drawing it from its platforms and its votes in Congress, it is not at all strange that it should be most anxious to be rid of it, but a people who have suffered so much from that history will not forget it. With this history behind it, with no honest effort to reverse its policy, which in the past has been so dangerous, the Democratic party, failing to furnish any additional reasons for an increase of public confidence in it or in its policy, demands that the public confidence, so long withheld, shall be restored to it.

Standing in the midst of an unrivaled prosperity, due in a great measure to an honest administration of public affairs, which the Democratic party has steadily opposed, occupying a position where all business and industrial interests are solidly thriving, the people of this country desire no change which would reverse the policy that has led us up to these magnificent results.

EMERY A. STORRS.

THE SUCCESS OF THE ELECTRIC LIGHT.

Not a little impatience has been manifested by the public at the seemingly unaccountable tardiness with which the work of introducing the "carbon-loop" electric lamp into general use has hitherto progressed. It is now several months since the announcement was made through the newspapers that all the obstacles in the way of the utilization of the electric light as a convenient and economical substitute for gaslight had been removed: that a method had been invented by which electricity for light or for power could be conveyed to considerable distances economically; that the current could be subdivided almost *ad infinitum;* and that the electric lamp was henceforth to be as manageable for household purposes as a gas-jet. But, so far as the public can see, the project has since that time made no appreciable advance toward realization. The newspapers have reported, on the whole with a very fair degree of accuracy, the results of the experiments made with this system of lighting at Menlo Park; scientific experts have published their judgments, some of them pronouncing this system to be the desiderated practical solution of the problem of electrical lighting which has vexed the minds of physicists since the day when Sir Humphry Davy produced his famous five-inch voltaic arc. Still it must be confessed that hitherto the "weight of scientific opinion" has inclined decidedly toward declaring the system a failure, an impracticability, and based on fallacies. It will not be deemed discourteous if we remind these critics that scientific men of equal eminence pronounced ocean steam-navigation, submarine telegraphy, and duplex telegraphy, impossibilities down to the day when they were demonstrated to be facts. Under the circumstances, it was very natural that the unscientific public should begin to ask whether they had not been imposed upon by the inventor himself, or hoaxed by unscrupulous newspaper reporters.

Now, the fact is, that this system of electrical lighting was from the first all that it was originally claimed to be, namely, a practical solution of the problem of adapting the electric light to domestic uses and of making it an economical substitute for gaslight. The delays which have occurred to defer its general introduction are chargeable, not to any defects since discovered in the original theory of the system or in its practical working, but to the enormous mass of details which have to be mastered before the system can go into operation on a large scale, and on a commercial basis as a rival of the existing system of lighting by gas.

With the lamp and generator which at the time of the first announcement it was proposed to use, the electric light could have been made available for all illuminating purposes as gas is now; the expense would have been considerably less with the electric light; the lamp would have been quite as manageable as a gas-burner. But, fortunately, the unavoidable delay interposed by administrative and economic considerations afforded opportunity for further research and experiment, and the result has been to introduce many essential modifications at both ends of the system—both in the generator and in the lamp; at the same time sundry important changes, all in the direction of economy and simplification, have been made at almost every point in the system, as well as in the details of manufacturing the apparatus.

As for the lamp, it has been completely transformed. The external form of the two types of lamp is identical; the principle of illumination—incandescence of a solid body *in vacuo*—is also the same; but, in the earlier lamp, light was produced by the incandescence of a platinum wire wound on a spool of zircon; in the perfected lamp the source of light is incandescent carbon. Another essential difference between the two is found in the form given to the incandescent body: in the platinum lamp it was coiled compactly on a small spool; in the carbon lamp it is a loop some five inches in total length. This incandescent loop is found in practice to afford a better light for domestic purposes than an incandescent mass of compact form: the shadows it casts are not so sharply defined, their edges being softened.

This loop of carbon is now prepared from the fiber of a cultivated species of bamboo from Japan. A thread of this material, after undergoing a certain chemical process, is bent into the required shape, and then reduced to carbon. The resulting carbon loop is of a remarkably homogeneous structure, and possessed of a high degree

of tenacity, so that it can withstand, without breaking, all the concussions it is likely to be subjected to in household use.

The perfected lamp consists of an oval bulb of glass about five inches in height, pointed at one end, and with a short stem three quarters of an inch in diameter at the other. Two wires of platinum enter the bulb through this stem, supporting the loop or ∩-shaped thread of carbon, which is about two inches in height. The stem is hermetically sealed after the introduction of the carbon loop. At its pointed end the bulb terminates in an open tube through which the air in the bulb is exhausted by means of a mercury-pump till not over one millionth part remains; the tube is then closed. The outer extremities of the two platinum wires are connected with the wires of an electric circuit, and at the base of the lamp is a screw by which the circuit is made or broken at pleasure. When the circuit is made, the resistance offered to the passage of the electric current by the carbon causes the loop to acquire a high temperature and to become incandescent; but, as this takes place in a vacuum, the carbon is not consumed. The "life" of a carbon loop through which a current is passed continuously varies from seven hundred and fifty to nine hundred hours. With an intermitted current, the loop has an equal duration of life; and, as the average time an artificial light is used is five hours per day, it follows that one lamp will last about six months. Each lamp costs about fifty cents, and when one fails another may easily be substituted for it.

The light is designed to serve precisely the same purposes in domestic use as gaslights. It requires no shade, no screen of ground glass, to modify its intensity, but can be gazed at without dazzling the eyes. The amount of light is equal to that given by the gas-jets in common use; but the light is steadier, and consequently less trying to the eyes. It is also a purer light than gas, being white, while gaslight is yellow. Further, the electric lamp does not vitiate the surrounding atmosphere by consuming its oxygen, as gaslights do, and discharging into it the products of combustion. The heat emitted by the lamp is found to be only one fifteenth of that emitted by a gaslight of equal illuminating power: the glass bulb remains cool enough to be handled. Of course, there are here no poisonous or inflammable gases to escape, and the danger of fire is reduced to *nil*, with a consequent reduction of the rate of insurance. Again, this light, unlike gas, is always of uniform quality. A sort of meter registers exactly the amount

of electricity consumed in each house. Finally, not to enumerate all the advantages which this system possesses over gas-lighting, the lamp can be manipulated even by the most inexperienced domestic servant; nor can the most careless person do injury to himself, to others, or to property, through not understanding its mechanism.

Another important modification of the system, introduced since the latest authorized account of the light was published, is the substitution of dynamo-machines for magneto-machines in the stations from which the electricity is to be supplied to the several districts of a city. Here, again, the change is entirely in the direction of simplicity and economy. Where before it was proposed to furnish a station with one hundred magneto-machines with a multiplicity of belts and shafting, we now make ten dynamos of 120-horse power, each worked directly by a 120-horse-power engine. We thus do away with a very considerable loss of power, and at the same time the outlay for machinery is very much lessened.

With these and other modifications of the system, which need not be particularized here, it may be safely affirmed that the limit of economy, simplicity, and practicability has been reached. The time for experiment has passed; any further improvements to be made in the system must be suggested by its performance when put to the test of actual use on a large scale.

To the question which is so often asked, When will a public demonstration of the working of this system be made? we would reply that such a demonstration will in all probability be made at Menlo Park within two months from this date. The time which has elapsed since the preliminary demonstration of last January has been by no means a season of inaction for the promoters of this enterprise. There is a vast gulf between the most successful laboratory experiment possible and the actualization of the results of that experiment in a commercial sense. A prodigious amount of work was necessitated by the establishment of factories for producing the lamps, the generators, and the other essential parts of the system in large quantities, so as to be able to supply the first demand. We were about to enter a field that was practically unexplored, and, even on a preliminary survey, problems of the most complex kind arose on every side. These had to be solved before the first step could be taken toward the actual introduction of the light into our cities as a substitute for gas. The practical engineer and the man of business can best appreciate the difficulties that had to

be overcome. Like difficulties have in the past retarded the general introduction of nearly all the great mechanical and chemical inventions. Years intervened between the discovery of photography and the taking of the first photograph; the steam-engine, the steamboat, the locomotive-engine, did not come till long years after the discovery of their scientific principles; the same is true of the telegraph.

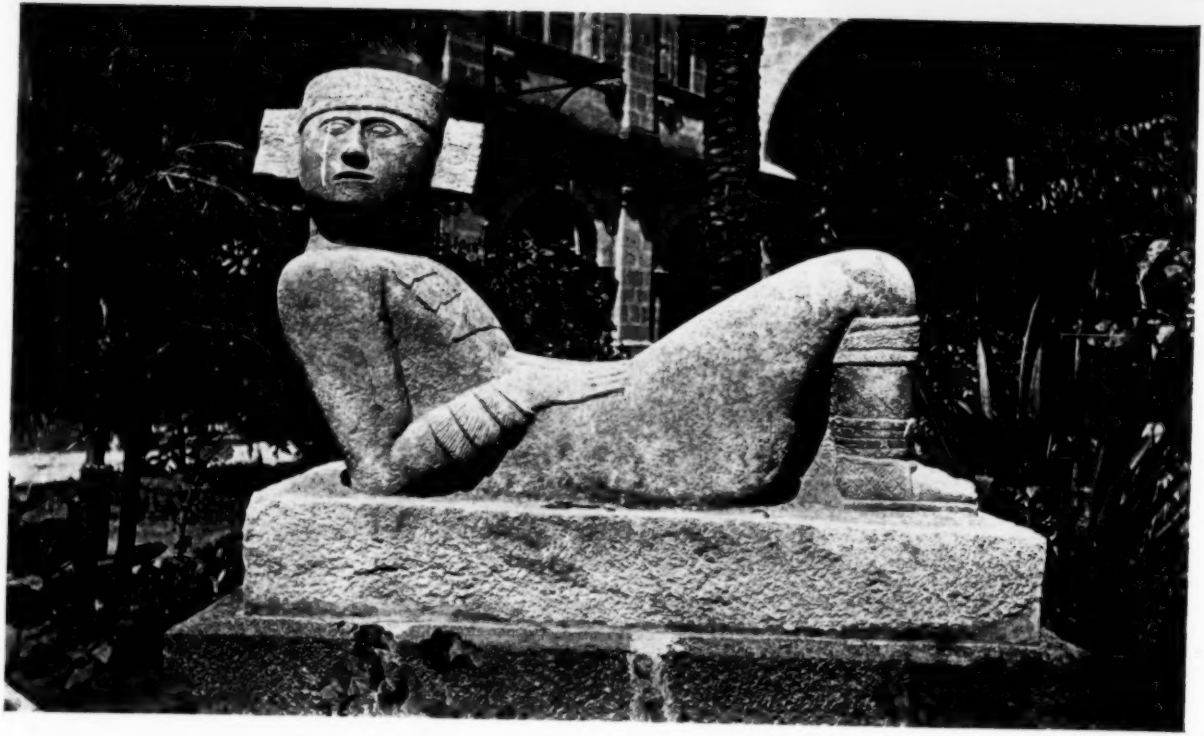
But preparations are being actively made for placing this system of electric lighting within reach of the people in all the great centers of population throughout the United States. To this end, cities are being mapped and divided into districts, each to be supplied with electricity from a central station; estimates are being made of the exact cost of plant in the different cities; contracts are being negotiated for the manufacture on a large scale of engines, dynamos, lamps, wire, and all the other supplies needed for the practical introduction of the system throughout the country; men are being trained to put up the plant of central stations, to run the machines, and to execute all the details of the introduction and working of the system.

A very important question is that of the cost of this light. The price of the electric light will, of course, be determined by the capitalists who invest their money in it as a business venture, but it will of necessity be low as compared with gaslight, though it will vary according to the original cost of plant, the demand in any given locality, and other conditions. It is not at present the intention of the company controlling the patents on this system to supply the light directly to consumers. The company will erect the first station in New York City, and will themselves conduct that station; but the other stations in New York, as well as in the other cities throughout the United States, will be managed by local companies, who will pay a royalty to the Electric Light Company for the right to use the system.

So much can be safely affirmed, that this light can be sold at a price which will make competition on the part of the gaslight companies impossible: 1. Because the total investment in plant to develop a given quantity of light is much less; 2. Because the depreciation of plant is much less; 3. Because the cost for labor employed is very much less than in gas-works; 4. Because the electric-light companies will not have to make any dead investment in large areas of real estate; it is not even necessary to erect buildings specially to serve as stations, for the ordinary buildings, such

as are used for different branches of manufacture, will serve the purpose, and may be hired on rental; 5. Because the companies can sell electricity for two uses—for light at night, and for power in the daytime. It has been ascertained by experiment that power can be supplied through this system from twenty-five-horse power down to $\frac{1}{100}$ of a horse-power on the same mains that supply the light, and that elevators, printing-presses, sewing-machines, fans, pumps, etc., can be run by electricity from a central station far more economically than by any other means. A canvass of the city of New York has shown that the demand for small powers, in private dwellings and minor industrial establishments, will give occupation to the central stations in the lower part of the city for ten hours daily. This power can be supplied at such a profit to the companies as to more than cover the expense of running the stations for six hours longer in producing electric light. It is evident, therefore, that, in a competition with gas, the electric light possesses an enormous advantage.

THOMAS A. EDISON.



THE GOD OF WINE.

Found at Chichen Itza, (Yucatan).

THE RUINS OF CENTRAL AMERICA.

PART II.

A THEORY OF CANNIBALISM.

THIS question may have nothing to do with Mexico from an archæological point of view; but in its ethnographical bearings it is highly important.

No one has ever raised the question, What is the origin of cannibalism, or why did a civilized people like the Aztecs observe so barbarous a custom? I believe I can answer this question, and from its solution deduce consequences of very high importance.

However savage they may be, men do not eat one another unless they are compelled by absolute necessity—starvation or race-preservation.

In our day we see shipwrecked mariners drawing lots to decide who shall be eaten, or devouring the one that is weakest.

Cannibalism has never been observed among tribes, however savage or ruthless, which occupy hunting-grounds wide enough to meet their wants, any more than among pastoral or agricultural tribes possessing grain or cattle. Thus the red-skins of North America were not cannibals. They used to scalp and torture their captives, but did not eat them; and, if the phenomenon is observed among civilized nations, it is exceptional, as in the Chinese famine, or as in cities reduced to extremity by a protracted siege. Then, as at Jerusalem, at Paris, and other places, we see mothers devouring their own children. This observation gives us the explanation of this abominable custom.

In short, cannibalism had its rise among tribes having no cattle, no hunting-grounds, and having for their maintenance only vegetable food, or an insufficiency of other food.

You find cannibalism in America at the time of the conquest

among the Caribs; in the islands of the Pacific, where the natives had for their only sustenance cocoanuts and fish; and in Australia, where the soil was so poor that not only was man a cannibal, but he was furthermore constrained to limit the population.

But no tribe, however savage, having at hand, whatever the trouble might be of securing the prey, bears, reindeer, horses, or oxen, is ever cannibalistic; while, as we have said, the natives of the Pacific islands, not following the chase, and having no cattle, used to make war on their neighbors with the view of taking prisoners and eating their flesh. This they did at first from necessity; afterward the custom was consecrated by religious tradition.

Now, the natives of South and Central America and of Mexico, in the high state of civilization in which they were found at the time of the conquest, were cannibals, though the time had gone by when necessity compelled them to be such. They had become farmers; they cultivated several species of grain, and they derived from the chase and from various domesticated animals food sufficient to support life. Besides, as historians tell us, they were extremely gentle in their manners. Why, then, were they cannibals? The reason is, though they would not themselves account for it in that way, that they were complying with a religious tradition.

The fact is, that they never devoured their captives till after they had made an offering of them to their gods; and, apart from the seasons of the religious sacrifices, they never touched human flesh. It was not necessity, therefore, that perpetuated this cruel custom among them: it was religion.

But whence came this religious tradition? Not from the north, where the pastoral races of Asia had never practiced it; it came not from China or from Japan, whose agricultural populations had never known of it: it came from the islands of the Pacific, and this is one of the strongest proofs of the influence of the Malay races on the American races.

The earliest migrations, whether voluntary or not, coming from the west to the coasts of South America, must have been made up of cannibals, who were such from necessity, like their ancestors. Then, becoming civilized, and developing their means of subsistence, they were still cannibals by tradition—a tradition which they cherished, and which they propagated in the most civilized states coming after them, as we see in Central America and Mexico at the date of the conquest. This custom, practiced as it was in conformity with a religious principle, is, taken in connection with many other cir-

cumstances, positive proof of a Polynesian influence on American civilizations.

THE INDIAN BACCHUS, TEZCATZONCATL OR IZQUITECATL, CALLED BY LE PLONGEON CHAC-MOOL.

In June, 1877, Señor Herrera y Perez published in the "Voz de Mexico" newspaper an essay on the subject of Chac-Mool, in which he describes this statue, and compares it with another that for a long time has been in the National Museum, and which is said to have been found in the State of Tlascala.

Notwithstanding the well-known resemblance existing between these two monoliths, Señor Herrera holds that they represent two very different personages. In his opinion the statue from Tlascala represents a chief of the Olmecs, Cuapintzintli. The Yucatecan statue he holds to represent Providence, the goddess of the waters.

Señor Jesus Sanchez, author of the article we are translating, and which was published in Part VI of the "Annals of the National Museum," does not accept Herrera's argument as conclusive, for, if the two statues are identical, how can it be supposed that the one represents an Olmec chief and the other a divinity worshiped by the Itzaës? They both represent a nude man lying horizontally on his back with legs flexed upward and the soles of his feet resting on the ground. Both hold with their hands a round vessel or bowl. The figures wear ornaments only on their heads, wrists, and ankles. The foot-gear, which Le Plongeon compares to the sandals found on mummies in the Canary Islands, is the same in both. Finally—and this is a very noteworthy point of resemblance—both statues have the head raised to the same height, the one looking to the right, the other to the left. In fact, the only difference worthy of remark is the absence of ornaments on the breast in the Tlascala statue.

We are not to suppose that all these circumstances are fortuitous; and to me the logical conclusion seems to be that the two statues represent one symbolic personage. Could the Itzaës have held in so high esteem Cuapintzintli, the Olmec chief, as to wish to preserve his image? On the other hand, could the Tlascaltecs have known and worshiped Chac-Mool, the king of Chichen-Itza? Both suppositions to me seem inadmissible, and I prefer to believe that the two monuments were dedicated to one divinity worshiped both in Yucatan and Tlascala, as also at Mexico, as we shall see later. This supposition is not so very improbable, for from the little information afforded us by historians concerning the religion of the

Yucatecans we know that their religious system was the same as that of the Toltecs. Says Torquemada: "The inhabitants of Yucatan worshiped the god Quetzalcohuatl, whom they named Kukulcan; and they said that he came from the west; also that their kings were descended from him." Further, the Tlascaltecs worshiped the same gods as the Mexicans: thus their favorite god was Huitzilopochtli, whom they called Camaxtl. Like all the nations of antiquity, the Mexicans, having no notion of the existence of one almighty Creator, multiplied their gods.

But what especially attracts notice in the statues we are comparing is their horizontal position—a thing which makes them exceptional among the many idols in the National Museum. In reading the descriptions of the gods constituting the American Olympus, as written by Gomara and Torquemada, we find only the statue of Quetzalcohuatl represented as assuming this horizontal position. "In the city of Tula," writes Torquemada, "he had a grand and gorgeous temple, with many steps to reach its top, but so narrow that there was hardly room for the foot. His statue was very ugly in form, its head very big, and heavily bearded. This statue was reclining and not standing, and was covered with a veil," etc. The thick, tufted beard characteristic of Quetzalcohuatl is seen in neither of the statues we are considering, and consequently we must look for some other divinity whose description and attributes will correspond.

Gama, in his learned work upon the ancient monuments found in the plaza at Mexico when it was graded in 1790, thus describes the Mexican god of wine, Tezcatzoncatl: "The idol represented by this statue is the god Tezcatzoncatl, which means mirror-locks (*chevelure des miroirs*); and he was the first god of wine, or one of the two principal gods of wine, hence his surname of Tezcatzoncatl Ometochli. His festival was celebrated with that of Izquitecatl.

"The figure," adds Gama, "seems to be a faithful copy of the original worshiped in its proper place in the temple. The head appears to be covered as with a convex mirror, or with burnished metal of some kind, if we are to judge by the polish of its surface. The ornaments of the ears, neck, arms, and legs are different from those worn by the other gods. But what especially distinguishes him is the basin full of liquor which he holds in his arms, and in the bottom of which, as in a mirror, is seen represented the paneled roof of the temple."

In this description Gama has in view an idol which he purposed

to present in his work by an engraving. Unfortunately, the work contains nothing of the kind, and we have to recur to his text. The recumbent position assumed by one of the wine-gods and the vessel he holds—details which, according to Gama, are characteristic—agree entirely with the Yucatan statue, as with that of Tlascala.

Gama furthermore thought he discovered the phonetic significance of the name Tezcatzoncatl (mirror-locks) in the band encircling the head of the Tlascaltec statue, a band ornamented with several round objects, as also in the many octagonal pieces constituting the head-dress of the statue from Yucatan, all of which may have represented mirrors.

At first I thought that, even though this explanation was not perfectly satisfactory, still it might not be far from the truth ; but, fortunately, I happened to come upon a third monolith, identical with the other two in its principal characters, and of a date which, in my opinion, is highly important. This ancient monument is found in the garden of Mr. Barron, at Tacubaya, having been purchased by him with other Aztec curiosities.*

We are unable to determine the locality where it was found. It is said to have come from a village in the neighborhood of the city of Mexico. This statue is ninety-seven centimetres (about thirty-eight inches) in length, by fifty centimetres (about nineteen and a half inches) wide, and sixty-three centimetres (about twenty-four and two thirds inches) in height. Like the other two, it represents a human figure lying on its back, the legs flexed, and the soles of the feet resting on the ground. It holds between its hands a vessel which rests on its belly, and the eyes are turned toward the left, as in the Tlascala statue. It needs not much study to see that the same allegorical conception is expressed by these three monuments. Apart from the slight differences noticeable in the ornamentation, and which may be referred to the influence of time or place, or to the fancy of the artist, the main idea is absolutely the same in all. It is to be noted that in this statue the hair is ornamented with an object of circular shape, which might well represent a mirror. If this is so, then here too we should have the word Tezcatzoncatl sculptured in phonetic characters, giving us the name of the god, " mirror-locks."

The base of this statue bears figures of frogs, a fish, mollusks, and sundry other aquatic things ; besides, there are sculptured

* Since 1878 it has been kept in the museum at Madrid.

representations of ears of maize. Thus the idol is associated with maize and the various products of the lakes, which were always the chief food of the Mexicans; and it carries a vessel which we must imagine to be filled with their favorite beverage. Hence we may resonably infer that this is the god of harvests, and of food in general. We say *infer*, because we find no description of this idol in the historians, and we only know that it had a special *cultus* in one of the seventy-eight chapels or oratories of the great temple at Mexico—a statement resting on the authority of three of our principal historians. Thus Sahagun writes: "The forty-fifth edifice was called Cintenpan. It was a chapel wherein was the statue of the god of maize." Torquemada says: "There was another chapel dedicated to the god Cintentl, called Cintenpan; he was the god of maize and of bread." Finally, Hernandez, in speaking of the temple named Inteopan, says that it was round, and that it contained the *god of bread.*

The Mexicans also invoked Tezcatlipoca, an all-powerful deity, entreating him to preserve their lives and remedy their ills. His name, according to Torquemada, signifies "polished and shining mirror," and they represented his image by means of small mirrors, as they did with Huitzilopochtli, for they reckoned both to be the gods of providence.

These sculptures plainly do not represent a goddess. The shape of the breast and the absence of skirts are sufficient proof of this; consequently, they can not represent the Mexican Ceres, nor Atlatona, whose name, according to Torquemada, means "she who shines in the waters." Unfortunately, the body of the Mexican statue in the museum is badly mutilated, and the distinctive features of Tlaloc's physiognomy—a wavy line over the mouth and long, sharpened teeth—are not to be seen.

Señor Herrera y Perez, in his article, says that on the squares which in the Yucatecan statue form the ears is graven the hieroglyph *dos cañas.* In that case we should have here the name of the god of revelers, Omeacatl, according to Sahagun. But the description that author gives us of the god does not tally with the one we are considering, and a simple inspection of the hieroglyph proves that it is not the sign *Omeacatl.* We are free to confess that we can not make out its meaning, and we much doubt that Dr. Le Plongeon was able to read in these mystic characters the name, style, etc., of the king of the Itzaës, Chac-Mool, as he asserts in his letter to Mr. Salisbury.

To sum up our remarks upon the statues which have given occasion to this essay, we would say that—

1. The three are absolutely identical in their essential characters.

2. The Yucatan statue can not be a king, as Dr. Le Plongeon asserts, for it is not to be supposed that a king of Yucatan should have been worshiped as a god at Mexico and at Tlascala.

The Tlascala statue does not represent the Olmec chief Cuapintzintli, as Señor Herrera y Perez holds, because the Itzaës, a people much more ancient than the Olmecs, could not have known of him; and we can not suppose that by mere chance two chiefs of those nations would have been represented in a manner so extraordinarily alike.

4. The statue from the city of Mexico, in our opinion, removes all doubt. It is accompanied by maize-ears, aquatic products of the Mexican lakes, and a vessel filled with liquor. From this we conclude that it must represent a god of food, and we hold ourselves to be justified in rejecting as absolutely erroneous and baseless the name Chac-Mool given by Le Plongeon to the Yucatan statue.

Such is a summary almost *in extenso* of Señor Jesus Sanchez's article on this important subject. I will send you photographs of the three statues, and I will make casts of them also.

In my opinion, the Yucatan statue is comparatively modern, if we are to judge from its appearance. The body of the figure having been first rough hewed, was then rubbed smooth with stones. This is patent at the first glance. As for the ornaments on the arms and legs, we clearly discern the scratches made by obsidian or some other hard stone. The statue, therefore, belongs to a time when the Yucatecans, or rather the Mayas, had lost all knowledge of the art of tempering copper which their forefathers possessed, and when, as at the period of the conquest, they had arms only of obsidian or other hard stones.

MISCELLANEOUS NOTES.

The Lepero.—At Mexico the monks are gone, and the *lepero* has grown out of the habit of giving them his money; for all that, he does not economize the more: he drinks more *pulque*, that is all.

Monastic Orders.—Upon the suppression of the monastic orders at Mexico, the confiscation of the property of the clergy and the demolition of certain churches and convents, the multitude protested, but without violence. The *leperos*, all covered as they were

with medals, rosaries, and scapulars, pulled down the houses of their fetiches, while the old women, indignant witnesses of the sacrilege, ejaculated their *aves* without ceasing. The exiles had fulminated the major excommunication against whosoever should have act or part in the work of demolition, or should tread the streets cut through the grounds of the torn-down convents; but after a week or so all fear vanished. Not only did the destroyers go about their work without remorse, but they even used the sacred wood-work to make their kitchen-fires, and the new streets had their passengers like the older ones.

The Name "Toltec."—It is with the Toltecs as with the Greeks, whose descendants we are in an artistic sense, as were also the Romans who preceded us. All modern nations would be Greeks were we to take account only of certain monuments. If the Toltecs were the creators of the monuments of North America, and also, as tradition asserts, of those of Central America, they must have possessed great elasticity of genius to raise structures so diverse both in material and in architecture. In Upper Mexico the material used is adobe; in some provinces a mixture of stones and mud; at Hochicalco and at Teotihuacan a mixture of volcanic stones and mud, covered with a layer of cement; at Mexico it was adobe covered with cement or lime, and polished; at Oaxaca it was stones and mortar, with here and there sculptured slabs; at Palenque it was stone and mortar overlaid with cement, and this cement modeled into bas-reliefs; at Palenque, too, there are sculptured stones bearing inscriptions; in Yucatan there are pyramids and monuments of stone and mortar.

True, it might be said that each nation can only employ the materials it has at hand, and that the Toltecs must needs have varied their processes according to the differences of locality and the instruments at their command. But is it not more logical to suppose that the Toltecs, who were the artistic, the civilizing nation *par excellence*, were imitated by those who came after them, and that consequently they gave their name to every civilization that resembled their own? In this way many obscure points might be explained.

A Curious Custom.—I note a curious custom existing among a tribe of Indians who inhabit the shores of Lake Chalco, near the city of Mexico. This tribe annually perform, as a matter of traditional observance, and without knowing the reason why, the following ceremony: A group of Indians, dressed as men and women in the most absurd of French or European costumes, put out into

the lake, landing again at a point a short distance away. Then they reënter the village amid the hooting of the population, who fall upon them, beat them, chase them, and compel them to reëmbark. The performance, therefore, represents a maritime invasion repulsed. But, as there were no warriors among the invaders, I was puzzled, for I supposed the ceremony to refer to the war of intervention. No one was able to give me any explanation beyond repeating the word "*Francia, Francia.*" At last an aged man informed me that this masquerade had reference to the Spanish war of 1808, during the first empire.

It is thus that traditions are perpetuated while not even they who hand them down know their origin. A certain intelligent man to whom I mentioned this observation simply replied, "Do your French peasants who sing the mass in Latin know what they are saying?" To me the reply seemed profound, and I was silent. The world is full of absurdities.

I have seen, at the house of Señor Alfredo Chavero, a lion's head in terra cotta, which is a genuine work of art. It formed a part of a vase, and is about forty centimetres (fifteen and two thirds inches) in diameter; it is admirably modeled. This head comes from Mitla, and, curiously enough, it has nothing in common with the architecture of the buildings nor with the other works of art there found. It is *sui generis*, and appears to have been overlooked by all who have hitherto written about the monuments.

COPPER AMONG THE ANCIENT MEXICANS.

This is a very interesting subject, and I wish to treat it in connection with a curiously shaped hatchet I found recently.

Many authors have asserted that there is no copper in Central America, and that the copper in use among the natives before the advent of the Spaniards came from Lake Superior. This is certainly an error. In Chili, in Colombia, in Guerrero, in Chihuahua, and in New Mexico, there are some very rich copper-mines that have been worked since the conquest. Prior to the conquest the Aztecs got lead and tin from the Tasco mines, situate to the north of Chilpancingo; they used cinnabar as a pigment; as for copper, that was the metal most usually employed in the mechanic arts—for the Aztecs it took the place of iron and steel. Their weapons, their axes, their chisels, were of copper derived from the Zacatollan Mountains. On this point we need only refer to the letters of Cortes to Charles V, concerning the tribute paid by the subject nations to

the Mexican kings before the downfall of the empire. We read that Tepecuacuilco and other villages were required to furnish, besides the tribute of maize, honey, and cotton cloth, one hundred copper hatchets; Quinauhtcopan and other towns, in addition to gold and military stores, had to contribute eighty hatchets of copper and eighty bars of the same metal. This tribute was paid every eighty days, and it must not be deemed excessive, seeing that it was always paid. It would have been almost impossible to collect it if the copper had to be brought from Lake Superior. Here we will cite an interesting fact connected with the working of copper-mines by the natives; it is mentioned by Señor Orozco y Berra:

In September, 1873, while making a reconnaissance of the mountain del Aquila, in the State of Guerrero, a workman employed on the vein of copper existing in that locality saw his crowbar suddenly disappear. On inquiring into the cause of this accident, there was found an excavation 3·50 metres (about eleven and a half feet) long, 1·50 metre (about five feet) deep, and a little over one metre (about three and a quarter feet) wide. At the bottom was found a rich vein of copper from four to ten centimetres (one and a half to four inches) thick. Felipe Larrainzas, civil engineer, closely examined the cavity, and soon ascertained that there was no sign of iron or of powder, but that the walls and the floor presented traces of fire. Further, he noticed that the metal, as well as the surrounding rock, was broken up and split in sundry places. At first no tools were discovered, but, on a careful search amid the *débris*, there were found one hundred and forty-two masses of stone of various sizes shaped like hammers and wedges, the ends of which were worn and broken off. These stones did not belong to any of the rocks constituting the mountain. There was no longer room for doubt that this vein of copper had been worked by the native races in earlier times.

The process of extraction was apparent: the rock was heated, and then allowed to cool slowly, or perhaps it was sprinkled with water to hasten the operation. The metal and its gauges were thus split, presenting interstices into which the wedges were driven, and masses of metal of greater or less size were broken off.

Further, the Aztecs had discovered a means of tempering copper, and of giving to it a considerable degree of hardness, by alloying it with tin. That hatchets of copper were in plenty among them admits of no question, for Bernal Diaz tells us, in the narrative of his first expedition to Tabasco, that the Spaniards bartered

glass-ware for a quantity of hatchets of copper, which at first they supposed to be gold. Copper abounded in Venezuela, and we still find there in great numbers trinkets of copper mixed with gold, or of pure copper, representing crocodiles, lizards, frogs, and the like.

As for their agricultural implements, the Mexicans, according to Clavigero, used the *coatl*, a copper instrument with a wooden handle, resembling the iron implement now in use among the Indians. In cutting down trees they employed copper axes like our own, except that, instead of having a socket for the haft, the latter was split, and the head of the axe secured in the cleft. I have myself seen some very large, handsome specimens which bore a resemblance to American axes. The little hatchets I found at Mitla were slender, shaped like a *tau*, and were not over eight or ten centimetres (three or four inches) in length. The particular hatchet which has given occasion to the present article appears to be a piece of native copper wrought and fashioned with a stone hammer.

Dupaix, in his description of the ruins of Mitla, mentions hatchets of the same kind which I found afterward, but he holds that they were coins, not tools. Their thinness lends probably to this supposition, and what makes it still more probable is the fact that an Indian, Pascual Baltolano, living in the town of Zochoxocotlan, found at the distance of a mile to the south of Oaxaca, while plowing his field, an earthen pot containing two hundred and seventy-six of these instruments, all very much alike in size and thickness. Their form is seen in the accompanying figure.

Were these objects the coins mentioned by Torquemada when he writes that "in other places there were found certain copper coins shaped like a *tau*, three or four finger breadths wide"?

The Aztecs also made bronze chisels, concerning which I find a very interesting article by Señor Mendoza, the learned director of the National Museum at Mexico. He describes certain specimens of bronze chisels belonging to the collection in the museum. One of these is represented below.

When freed from the coating of oxide the bronze presents the following characters: In color it resembles gold; its density is equal to 8·875; it is malleable, but, unlike pure copper, it is hard, and breaks under strong traction or tortion. The fracture presents a

fine granulation like that of steel ; in hardness it is inferior to iron, but nevertheless it is sufficiently hard to serve the purpose for which it was intended. One of these chisels, on analysis, was found to consist of copper 97·87 per cent., tin 2·13 per cent., with infinitesimal quantities of gold and zinc. Humboldt, writing of some ancient chisels from Peru, says that they consisted of ninety-four per cent. copper and six of tin, and that their specific gravity was 8·815. Other chisels of Mexican origin, analyzed by Señor Fernando Ramirez, were found to contain of copper ninety and of tin ten per cent. The American races had therefore reached the transition period between the age of polished stone and the bronze age. With such instruments as those just mentioned, the Indians felled the trees of their forests, and shaped them into great beams for use in the construction of their temples and palaces ; it was with these well-forged bronze chisels that they carved in the hardest rocks the effigies of their gods and of their kings.

A CRITIQUE OF THE HISTORIANS OF MEXICO.

I have now before me three views of the ancient city of Mexico, but they might be supposed to represent three distinct cities, so widely do they differ from one another. A like discrepancy is found to exist between the accounts given of the same events by different historians of Mexico. Even the most truthful of them have a weakness for hyperbole and amplification. Thus Clavigero, my favorite author, in describing the ruins of Mitla, tells us that the columns of the grand hall were monoliths sixty feet in height, whereas they are only twelve feet. I mention this fact because it is one that I can demonstrate ; how many other exaggerations like this pass unchallenged, and are accepted as true ! Hence we must believe only half, and scrutinize closely. In this way I have been enabled to correct Torquemada where he speaks of the small pyramids on the grand avenue, or "road of the dead," at Teotihuacan, as being "agglomerations of dwellings"—human hives. I ascended one of these pyramids, and found on the summit a plateau still coated with cement without a single break, but no sign of habitation. Then there were stairways all around the pyramid, leaving no room anywhere for dwellings. The only reasonable supposition would appear to be, that each of these minor pyramids had on its summit an idol. The whole line of the grand avenue was flanked by these monuments, and the two great pyramids were surrounded by them.

THE HABIT OF BURYING VALUABLES IN THE GROUND.

This habit or instinct of burying treasure differs essentially from the habit or instinct of hoarding. The miser, in some sort, enjoys his treasure; he can see it, count it, handle it; but treasure buried in the ground profits neither the one who buries it nor any one else. Evidences of this instinct are found at Mexico; we formerly observed similar evidences in the valley of Oaxaca, where over four hundred million dollars is supposed to be buried.

Here is capital withdrawn from circulation, and of no profit even to the one who buries it. The Indian derives no enjoyment whatever from it—does not count, or see, or handle it; his only comfort is that it is his, and that it is there. Whence does he derive an instinct so opposed to our modern habits? In the time of persecution succeeding the conquest, the natives were naturally mistrustful, and it is to this cause that we must refer their present habit of burying their valuables. The Indian in those times buried his treasures in order to appear poor; the Indian of to-day acts in conformity to hereditary instincts; he hides his property away without clearly understanding why. Do we not find these same instincts among all conquered or persecuted races?

In China the peasant buries his wealth in the ground; and it is only in the cities and in foreign countries that the intelligent and the educated Chinaman turns his capital to account. In Cochin-China the people can be induced to pay the taxes only by the application of the rod, and generally the taxes are paid in kind. In France, too, under the kings, the peasant buried his money, and this habit, transformed into an hereditary instinct, still subsists in our time. It is only of late that, influenced by example and guided by education, he has entered the current of modern life, and has seen the advantage of converting into values a portion of his capital.

Even among the higher classes in France, the individual still loves to hoard during his life, and it is only on his death-bed that the rich and charitable man divests himself of his wealth, or of a part of it, in favor of philanthropic institutions. This is a remainder of the same instinct.

We must go to the United States if we would find a young nation that has broken with the past. There only do you find people who not alone do not hoard, but who *in life* give large sums to public institutions; and the Peabodys, Astors, Coopers, *et al.*, are known all over the world, though elsewhere they have no imitators.

In the Indian, the instinct of hoarding is carried to the degree of fanaticism. I have myself observed at Oaxaca cases where men, who to-day would receive hundreds of dollars for ingots of gold or for cochineal, would on the morrow have not enough money to change a piaster.

The Indian who finds hidden treasure covers it up again scrupulously, never laying hand on it; and the Indian who is taken into the secret of buried treasure, by the one who has hidden it, will die of hunger, and will resist all importunities, undergo all manner of persecution, rather than betray the trust that has been reposed in him.

The following narrative, told to me by M. de Garay, is a good illustration of this phase of Indian character: A wealthy Indian, living in the neighborhood of Mexico, married his daughter to a Frenchman, who made her his wife on speculation, and in the hope of succeeding to his father-in-law's estate. The old man was supposed to be possessed of one hundred thousand dollars. He died intestate, like all Indians. After his death, search was made for the money, but nothing was found. His little house and his garden-plot were the only property left for the heirs. This Indian had one close friend who shared all his secrets, and who was as poor as the other was rich. Every means was tried to induce him to tell where the money was hid; they even offered to give him one fourth, one half of the treasure, but in vain. Later, they made him drunk, and a drunken Indian is very talkative. His tongue was loosed, and the heir, sure of the success of his *ruse*, carefully noted every word; but at the critical moment, when he seemed to be on the point of giving up the secret, the man suddenly stopped. Then, with a look of terror as though the ghost of the deceased had confronted him, he arose, and ran from the place as if the furies were pursuing him.

TIGER'S HEAD, IN THE POSSESSION OF SEÑOR CHAVERO.

I have taken a mold of a tiger's head found at Mitla. It is fifty centimetres wide by forty centimetres high. It is in the style of classic ornamentation, and would pass for a European work of art. Indeed, it is in the very highest degree artistic, and it leaves the observer in a quandary. If this head was modeled by an Indian, then there existed in ancient Mexico an art that was untrammeled and that was totally distinct from the hieratic art—of which latter we perhaps are acquainted only with the most inferior ex-

pressions. I will photograph this tiger's head, as also an admirable head of a man from Yucatan. This latter head, though damaged, would bear comparison for finish and modeling with the works of the ancient Greeks. One is amazed on finding such elevated types of artistic expression alongside of grotesque figures such as meet us everywhere.

THE STONE YOKE FOR HOLDING DOWN THE VICTIM IN THE HUMAN SACRIFICES.

Fig. 1.

Fig. 3.

Many of the descriptions which have been written of the human sacrifices practiced by the Aztecs are illustrated with a figure of the stone upon which the victim was laid. We are told that he was held down by five priests, of whom two held his legs, two his arms, and one his head or his neck. This last, according to the historians, laid a yoke of stone upon the victim's neck, and then the high priest thrust a large stone knife into his breast, plucked out the heart, and with it rubbed the image of the god. The only collar or yoke hitherto known is that represented by Fig. 1 above, and of this there are several fine specimens in the National Museum.

Now, we are told that the Stone of Sacrifice was two metres (about six and a half feet) in length, by about one metre (about three and a quarter feet) wide, and that its upper surface was arched, so that the breast of the wretch, as he lay there upon his back ready to be sacrificed, would project considerably, thus making it easy for the high priest to lay it open with the knife and pluck out the heart.

If the stone was two metres long, the yoke No. 1 could not be of any service, inasmuch as the victim's body did not extend over the whole length of the stone, and consequently the arch of the yoke would not come down upon his neck. But suppose his head to have reached beyond the end of the stone: in that case the weight of the yoke would have held the victim, but it would have

strangled him. It is plain, therefore, that the instrument No. 1 served some other purpose.

I have just had the good fortune to find another instrument hitherto unknown, which can be nothing else but the yoke mentioned by the historians: it is represented in Fig. 2. Its length is nearly equal to the width of the Stone of Sacrifice, and its under surface is concave, answering to the arched top of the sacrificial stone. Further, in the middle it has a depression sufficiently deep to fit the neck of a man, so that the fifth priest, whose function it was to hold the head, needed but to apply this yoke, and then it was impossible for the victim to stir. In Fig. 3 is seen the Stone of Sacrifice with the victim laid thereon, and the yoke applied to his neck.

This is a discovery of no little importance, but it is with this yoke as with many other things connected with the history of Mexico: the descriptions of it which have come down to us differ from one another materially. Clavigero, the most trustworthy and the most judicious of Mexican historians, in the representation he gives of a human sacrifice, has the neck of the victim secured simply by a cord.

I was very desirous of purchasing this yoke, which is probably the only specimen of its kind in existence, and which is, therefore, of great value, though only half of it remains; but it belongs to a collection for which twenty-five hundred dollars is asked, and the owner will not sell the yoke alone.

CONTRADICTIONS OF THE HISTORIANS AND OF MODERN AUTHORS.

I have already remarked upon the contradictions existing between the historians, the earlier as well as the later—the more you read the more unsettled does every point become. I had always supposed that in the codices known as the Mendoza, Dresden, Vatican, Cumarraga, Borgia, and Telleriano, supplemented by certain learned disquisitions on the picture-writing of the Mexicans, was to be found fully and clearly deciphered the history of the Aztec nations. In this I was very much mistaken, for even with respect to the monuments that seem to be most easily explainable, and that are best known, there exists a wide diversity of opinions. Take, for example, the Mexican Calendar, first interpreted by Gama: Valentini dissents from Gama's explanation of it; the learned Alfredo Chavero, who discusses the subject *in extenso*, differs from both; while a recent author, whose work will appear shortly, pro-

DEDICATION STONE.

Commemorating the Great Temple begun by Tizoc and completed by his successor, Ahuitzol.

poses an explanation that agrees with none of the preceding. Each of these theories contradicts all the others.

Some of these writers comment with deserved severity upon the mad theories of the Abbé de Bourbourg, who finds in one of the codices evidence that the current geological theory was originated by the Mayas 100,000 years ago. Others hardly deign to notice the childish fancies of Le Plongeon, who finds that the electric telegraph was in use among the Mayas; but at the same time these critics themselves will claim for the Aztecs the credit of having discovered the physical constitution of the sun, and of having observed the transit of Venus.

If of one student of American antiquities you ask what is his opinion about the crosses found everywhere in Mexico, you will be told that they are Buddhistic. A second will affirm them to be Christian. If you ask a third, his answer will be, "*Quién sabe?*" I have made some progress, you see.

Here is another illustration of the uncertainty which surrounds every point of Mexican history: Concerning the name of the fifth and the ninth Emperor of Mexico, *Montezuma*, a name that ought to have been familiar to all, and to have had a fixed orthography, I find from an article by Señor Orozco y Berra that, of twenty-three of the most learned authors and historians, only two agree in spelling it *Motecuhzoma*, three write *Montezuma*, the remaining eighteen write this familiar name in eighteen different fashions!

HIERATIC ART AND PROFANE ART.

I have already alluded to this subject, but I return to it, because it concerns a very important question.

Evidently these two schools existed side by side, but we must mark the distinction between them. All the products of the hieratic school are not only hideous but extremely rude and grotesque: they show what sort of an influence religions sometimes exercise upon the human mind. Similar effects of religious ideas are observable among other nations. But the profane art of the Mexicans, with its unceasing efforts toward improvement, produced some very noteworthy results, and it is by these, and not by the figures of their gods and priests, that we are to judge of the culture of this ancient people. I have seen some very fine specimens of sculpture, though unfortunately these are very few in number. Religion possessed itself of the whole being of this people, and it appears as though a work of art could be produced only by stealth.

EXPEDITION TO AMECAMECA AND POPOCATEPETL.

I pass over the incidents of the trip by rail to Amecameca. Nearly twenty-five years have elapsed since the time when I first dug out of the sand at the foot of Popocatepetl sundry vases and trinkets. At that day American or Mexican archæology was so little in vogue, so neglected by all, that I myself attached no importance to a discovery which to-day brings me back to the same locality. But the Indians who saw me carrying away the vases may in their turn have taken to rummaging over the ground and rifled my treasure. Perhaps to-day my cemetery is changed beyond the possibility of recognition, or even obliterated. To-morrow or the day after I shall know whether my anticipations are to be realized or disappointed.

Leaving Amecameca at 7 A. M., on July 5th, we came to the rancho of Tlamacas at eleven. We have five men to make the excavations. As I feared, the Indians have been digging here, and have taken away a great number of broken vases, all traces of which have disappeared.

The rancho of Tlamacas is at an elevation of 12,596 feet, and the nights here are very cold. We rose at five o'clock; the cone of Popocatepetl was like a mass of gold in the horizontal rays of the sun, and we surveyed in all its details the valley of Puebla. Malinche, Orizaba, and the long sierra that bounds the horizon on the east, all go to form a panorama of vast extent and of wondrous beauty. After breakfast we set out for my plundered cemetery. I will sink shafts and run trenches to determine whether anything has been left besides heaps of dirt and fragments of pottery. Even though we find nothing more, these fragments are of interest as attesting the existence of an Indian burying-place, 12,800 feet above sea-level, more than 425 feet above the timber-line. During the day no perfect specimen of any sort was found to repay us for the labor of climbing a steep ascent of over 820 feet in this highly rarefied atmosphere.

On July 8th we found six graves. In the first were the remains of a woman or girl, a vase of very odd shape, and two other small vases. I saved a portion of the skull; the remainder of the skeleton is so decayed that it crumbles on being touched. The body was buried with the legs and arms doubled up, and the chin resting on the knees; no traces remain either of the hands or the feet.

The second grave also contained vases, slightly different from

those of the first. Of the human remains, the only part that I could take away was the arch of the skull. It was of a jelly-like consistency, or like a piece of tripe. I have preserved it by coating it with a mixture of stearine and tallow.

The third was a double grave. I have taken the skull of the man—supposing the grave to contain the bodies of a man and wife—and carefully cleaned and dried it, together with various other parts of the skeleton.

The fourth must have been the grave of a chief, inasmuch as there was no trace of a skeleton. It was the custom of these populations to burn the bodies of their caciques, and to bury the ashes with their arms. In this grave I found a number of objects made of *chalchihuitl*, a hard stone, of green color, and susceptible of a high polish. I found also several obsidian arrow-heads, a great number of necklace beads made of divers hard stones, also some made of terra cotta, and several small idols of earthenware and of hard stones of great value. It is a singular circumstance that all or nearly all of these jewels or ornaments were broken, probably in sign of mourning. Not less remarkable is the fact that these ornaments of serpentine, granite, and porphyry, whether because they date from a very high antiquity, or because they have been buried in a soil that exerts some special chemical action upon them, are in many instances decomposed.

The fifth and sixth graves contained each one body, together with numerous vases of every shape, and *two candlesticks*. This latter discovery is important, if it is true that the Aztecs had no other means of artificial light but the *ocote*.* It was impossible to save any portion of the skeletons.

Now, whence came these bodies? Why this cemetery at the elevation of four thousand metres—one hundred and fifty metres above the timber-line? At the time of the conquest there was, as at present, no village within a distance of four or five leagues of this spot. Besides, the Indians stood in mortal dread of the volcano, the *Popocatepetl* (smoking mountain), and when the companions of Cortes visited the crater to get sulphur they were followed by a number of the Indians, who wondered at their audacity, but who themselves halted long before they had come to the limit of the snows. When first I discovered this burying-place, I supposed it to have been a refuge where the conquered Indians buried their dead

* Pieces of resinous wood.

safe from profanation by the Spaniards. Later I held the opinion that these remains must have belonged to a far more ancient race. But the close resemblance between the vases, personal ornaments, and other objects found here, and those known to be of Aztec, Chichimec, or Totonac origin, negatives the supposition of great antiquity.

Every day we are rewarded by the discovery of objects more or less interesting. Of ten graves opened on July 9th, five had previously been violated by the Indians; the other five yielded about sixty specimens, some of them very curious, while one is unique and of very great value. This is a terra-cotta cup with three feet, eighteen centimetres (about seven inches) in diameter, eight centimetres (about three inches) high, and five centimetres (about two inches) in depth. This cup is covered within and without with very pretty figures, painted in the brightest colors; white, yellow, blue, green, and red are combined in perfect harmony. I found another cup, a little smaller, but equally beautiful. Unlike the first, this smaller cup was earth-stained and soaked with water.

I set my two treasures in the sun to dry, and soon, to my great mortification, observed that the ornamentation of the one was peeling off, while the bright colors of the other were fading. I lost no time in removing them, and made all haste to photograph the larger cup.

Another object which I have found—an excellent caricature in terra cotta of a friar—proves conclusively that this cemetery dates only from the troublous times immediately succeeding the conquest. This specimen when found was covered with black, sticky clay, and was in two pieces. On removing this clay and fitting the two pieces together, I found myself in the presence of a friar with his cowl, beneath which is seen his hair tonsured in the form of a crown; he is in the regulation dress of his order—scapulary and gown; in his right hand he holds a cross.

On July 10th we found upward of one hundred objects of different kinds, many of them very interesting. Among them was another of those painted cups, but, like the other two, its colors faded and its enameled relief peeled off on exposure to the light. The urns, vases, cups, plates, and other articles in pottery which we have discovered in this burying-place, are for the most part works of art in the best sense of the term. But the idols, though they occur in the same graves, are extremely rude and hideous in their ugliness.

It is very singular that in none of the graves have we found a single lock of hair, though the hair usually resists decay for a long time. How are we to account for this? Was it the custom to cut off the hair before the body was committed to the earth? None of the historians—and I have consulted them all concerning the matter of interment—has anything to say on this subject.

DÉSIRÉ CHARNAY.

THE OBSERVANCE OF THE SABBATH.

THE question concerning the proper observance of the Christian Sabbath may be considered in either of two aspects—the secular or civil, and the religious or spiritual.

In the former aspect, the Sabbath—that is, the measurement of time by weeks, each period of six days separated from the next by a day of rest from ordinary labor—is a social institution of prehistoric origin; and the Christian Sabbath, in distinction from the Jewish and the Mohammedan, is characteristic of all the nations in the foremost rank of civilization. Geography distinguishes between the civilized nations and the semi-civilized. Diplomacy makes the same distinction. Nations that recognize in some sort the Christian Sabbath are included in Christendom, and Christendom includes all civilized nations. China is older than any other existing empire; is rich with the accumulations and the ceaseless productiveness of peaceful industry; boasts of its heroes and sages, its schools, its libraries, its most voluminous literature, its art of printing practiced long before Faust or Gutenberg had dreamed of such an invention; includes within its limits almost a third part of the earth's population; has had from immemorial ages a highly developed system of government—yet China is only the oldest and the richest of the semi-civilized nations. When China shall have learned to measure time by weeks, and to recognize the Christian Sabbath, that greatest of empires will no longer be classed with the semi-civilized. Turkey and Egypt are semi-civilized; but when Sunday instead of Friday shall be the Sabbath at Constantinople and Brusa, at Cairo and Alexandria, those two countries will have been advanced from the semi-civilized class to the civilized. Japan, having become the most earnestly progressive nation outside of Christendom, is now just learning to date in years of the Christian era, to number the days of the week, and in some sort to mark the Chris-

tian Sabbath as a day of rest; and, simultaneously with the new ways of thinking and living which these changes imply, Japan is coming into coördination and parity with the powers of the civilized world. France, in the early frenzy of that revolution which "the whirligig of time," after whirling almost a hundred years, is now bringing to a sane and settled conclusion before the admiring gaze of Christendom, attempted to abolish the Christian Sabbath with its division of time into weeks; but the attempt was ludicrously unsuccessful. The system of weights and measures, invented when France was making all things new, remains and is winning its way to universal acceptance; while the revolution calendar of decades and festivals, by which the nation was to be taken out of Christendom, is an almost forgotten folly. It is noteworthy, as matter of fact, that the Christian Sabbath is inseparable from Christian civilization, and that the highest civilization outside of Christendom is only semi-civilized.

Considered in this aspect, the question concerning the proper observance of the Sabbath presupposes another question: Has this element any potency in the civilization of Christendom? Is it worth having? Is it worth saving? What is the use of it? Does it contribute anything to the superiority of Christendom over the semi-civilized nations?

Rest is the primary and fundamental idea of the Sabbath. All other uses of the institution are either incidental to this or developed from it. Work is a necessity of human nature. But work must not be without intermission; and one day in seven, separated from the six and guarded by prohibition of ordinary work, secures to all the needed interval of rest. Accordingly, the Hebrew decalogue, consecrating the six days to work and the seventh to rest, provides explicitly that the Sabbath shall be, not the luxury of a few, but the right of all. "Work through the six days as God wrought through the cycles in which he was creating the earth and the heavens: but the seventh is the consecrated rest. On that day thou shalt not work—thou, nor thy son, nor thy daughter, nor thy man-servant, nor thy maid-servant, nor thy cattle—no, nor the stranger that shares thy hospitality." I am not citing the fourth commandment as a divine law, binding all men in all ages, but only for illustration. Be it that (as some Christians hold) Christ has abolished the decalogue; be it (as sciolists claim) that Sinai is a myth; not the less will it be true that the Sabbath, in its origin and essence, is simply a day for the intermission of ordinary work. It

is a day on which all men, the poor as well as the rich, the hireling as well as the employer, the bondman as well as his master, may rest from labor. I am not begging any question concerning the Mosaic institutions; I am only showing that the Sabbath, whatever its origin or authority, is in its idea the workingman's day of rest. It is with touching significance that the Book of Deuteronomy, in its rehearsal of the decalogue, says: "Keep the Sabbath-day—that thy man-servant and thy maid-servant may rest as well as thou; and remember that thou wast a servant in the land of Egypt."

"So teach us to number our days"; for, surely, this Christian numeration—six days of labor, counted from one day of rest to another—is something which Christendom could not afford to forget even if the Sabbath were nothing more than rest for muscles weary and stiff with the week of labor. There are two great nations in which, preëminently, the day of rest is guarded by law and by religious sentiment. How great a boon is Sunday, simply as rest from labor, to the millions of hard-working men and women in the United States and the United Kingdom!

If the Sabbath is, in its essence, a rest from the work of one week, and a refreshment for the work of another, then one incidental characteristic of it must needs be quiet enjoyment, or rather (to use a word for which there is no exact equivalent) comfort. It is not a fast, but rather a festival. The legitimate aspect of rest from labor is not gloom but cheerfulness. Therefore the right conception of the Sabbath makes it a day of family enjoyment. Honor to the Puritans for their testimony when James I and Charles I attempted to pervert the English Sunday into a day of revelry! If we admit that in their controversial zeal, eager to reach the opposite extreme from wrong, the Puritan Sabbath became almost Pharisaic in the rigor and the minuteness of its prohibitions and more than Pharisaic in its austerity, let us nevertheless remember that, if Puritanism had not protested by word and deed against the Stuart kings, there would not have been in England or in Scotland such a Sabbath as is implied in the "Cotter's Saturday Night." To the laboring-man without a home, or whose home is far away—if, having been obedient to the law "six days shalt thou labor and do all thy work," he remembers the Sabbath-day, and claims his privilege of rest—the day of rest, though it be in a mining camp, or in the woods, or on shipboard, is freighted with memories of home; and though tears may come into his eyes at the thought of those who remember their absent one and perhaps are praying for him, his Sabbath is

not less on that account, but so much the more, a refreshment and a joy. The ideal Sabbath is the Sabbath at home when the head of the household—farmer or mechanic, merchant or lawyer, capitalist or operative—enjoys his weekly rest among those for whom his six days of labor have been spent. Whether the sabbatic institution was or was not created by the fourth commandment, there seems to be in those words, "Thou, nor thy son, nor thy daughter, nor thy man-servant, nor thy maid-servant," a glimpse of the restful enjoyment which the day of rest, in the primitive conception of it, would bring to the families that keep it.

The day of rest, being rest and not revelry or dissipation, and being therefore a day of home enjoyment, brings with it opportunity for sober thought and conference. A Sabbath-keeping people will become a thoughtful people, and such thoughtfulness is manliness. All men, and especially the busy millions in an advanced civilization like our own, need for the mind's sake, not less than for the sake of wearied nerves and muscles, the seventh-day intermission of their ordinary work. A true Sabbath is something far more restful than a day of noisy jollity. In its calm air the mind rests by thought, not thoughtlessness—by quiet musing, by conscious or unconscious retrospection; perhaps by consideration of what might have been, perhaps by thinking what may yet be, perhaps by aspiration and resolve toward something in the future that shall be better than what has been in the past. The home in which Sunday is a day of rest and home enjoyment is hallowed by the Sabbaths which it hallows. In the Sabbath-keeping village life is less frivolous, and at the same time industry is more productive, for the weekly rest. A Sabbath-keeping nation is greater in peace and in war for the character which its tranquil and thoughtful Sabbaths have impressed upon it.

I have not yet mentioned the distinctively religious character of the day of rest; yet, even in its secular and civil aspect, the fact that our Sabbath is a day for public worship and for moral and religious instruction can not be overlooked. Remembering what is the essence of the sabbatic institution—six days for work and one day set apart for rest—we can hardly resist the conviction that, even from prehistoric times, a religious element must have entered into the conception of that day of rest. Earlier than synagogue or temple, earlier than the tabernacle in the wilderness, earlier than any instituted form of public worship, the resting on the appointed day of rest was itself, if I may so express it, a religious service. Most natu-

rally, therefore, that day became a day for religious assemblies. Thus, long before the Christian era, there began to be, among a Sabbath-keeping people, and as an outgrowth of their day of rest, the institution of the synagogue and the public reading of the Scriptures, with prayer and exposition. Thus, in the separation of Christianity from Judaism, the day on which those who believed the gospel held their assemblies for worship became "the Lord's day." We can not duly estimate the value of the Sabbath in its secular and civil aspect unless we take into consideration the matter of fact that to the public at large—not to some austere sect nor to a minority, but to the millions—it is their day for worship. On that day, millions of people in these States, as in other Christian countries, claim the privilege of rest that they may resort to their places of worship without hindrance or annoyance, and that each assembly, whether greater or less, may offer its homage to God according to its own convictions, and may receive instruction from its own religious teachers. Admit whatever may be reasonably alleged concerning ignorance or fanaticism on the part of worshipers and of teachers; admit that sometimes the coming together "is not for the better but for the worse," and, after every such exception, there will be no room for doubt as to the utility of this element in our civilization—the Christian Sabbath with its worshiping assemblies and its moral and religious instructions. As a Protestant, I have my own opinion concerning certain peculiarities of Roman Catholic worship and doctrine. Yet I hold that, for the millions of Roman Catholics in this country, their own worship and the teaching which they get from their clergy are far better than none. As a Protestant of what is called an "evangelical denomination," I may even abhor the misbelief and no-belief of so-called rationalism; yet I hold that it is better for rationalists of every grade to hold their assemblies on the first day of the week, after a Christian fashion, than to forsake the assembling of themselves together and have no Sabbath. What is a rainy day worth to the country, in terms of money, when a "spell of dry weather" has been broken, and, from the Atlantic to the Alleghanies, cities, gardens, farms, and forests are refreshed and enriched? So, we may ask, what is a Sabbath-day worth as it traverses the continent with rest for toiling millions, with "sound of church-going bells," and with all its refreshing and educating influences?

Our question, then, is, in effect, How shall this immemorial institution, the weekly Sabbath—this institution, characteristic of the

most advanced civilization—the Christian Sabbath—be preserved? Under the existing organization of industry, in the relations of capital to labor, and in the rapid growth of city populations, there are obviously certain tendencies which must be counteracted by adequate moral forces, or the Christian Sabbath will be lost.

The Sabbath can be preserved as a beneficial element in our civilization only by observing it, and carefully guarding it as a day of rest from work, and of rest for all. For me, the sabbatic institution has a divine authority, and my observance of it is therefore a part of my religion. But, aside from any supernatural revelation, the grand beneficence of the institution is its sufficient warrant. The division of time into weeks—six days for labor and one day consecrated to rest from labor—is, first of all, an arrangement in the interest of workingmen, and, for the sake of greater emphasis, I say of workingwomen. That rest is for them. It is their privilege. He who, under any pretense, or by any method of inducement, would deprive them of it, is their enemy. He whose influence tends in that direction is regardless of what—whether by a divine ordinance or by a beneficial and immemorial usage—is really their right. On that day the ordinary operations of industry must rest, that the laboring millions may rest—all for the sake of each and each for the sake of all. The steam-engine, the water-wheel, all the resounding machinery in which the forces of material nature are harnessed to work in the service of man, must rest, that man himself, the image of God, and therefore nobler than all material things, may have his rightful rest.

Jesus Christ said—and it is one of those sayings, so frequent in his teaching, which reveal the truth as by a flash of light—"The Sabbath was made for man, and not man for the Sabbath." If the weekly rest is *for* man, instead of being an end to which man is subordinate, the best observance of it is that by which it contributes most to human well-being. Simple as this truth is—almost a truism—the ancient Pharisees did not know it, and even Christians have sometimes seemed to forget it. A Pharisaic "fence," guarding the commandment by a code of minute regulations, may have the effect of making the Sabbath, in the feeling of those who keep it, an end rather than the means to an end, a burden and a weariness instead of a sacred rest. Nor will the effect be essentially different if the "fence" has been constructed by Puritan casuists. Yet the principle which the Great Teacher gives us,

and which I may venture to describe as evangelical in distinction from legal—the principle that the best Sabbath-keeping is that which is most conducive to the welfare of the individual, of the family, and of society—may be applied to illustrate some particulars both of privilege and of duty.

Under this principle the strictest of Christian Sabbath-keepers make large allowance for "works of necessity and mercy." Legalism said to the hungry disciples rubbing the ears of wheat in their hands to separate the kernels from the chaff, "You are breaking the Sabbath by work; for the plucking of those heads of wheat as you passed through the field was equivalent with reaping, and the rubbing is only another way of threshing." Legalism said, "It is not lawful to heal on the Sabbath-day, for healing is work." The evangelical answer was, "It is lawful to do good on the Sabbath-day." A law for the tribes of Israel in their own country prohibited the kindling of a fire, even for domestic use, on the day of rest—a regulation not inappropriate under the sky of Palestine, but superseded by the higher law of necessity and mercy. That higher law can not be so formulated as to leave no room and no demand for the exercise of individual discretion. Love is that higher law, and "love worketh no ill to his neighbor." The law of the Sabbath is rest from labor; but the Sabbath is for man, who is greater than the Sabbath, and the paramount law of love does not permit that the hungry should faint or the sick languish untended, lest the Sabbath be broken.

Inasmuch as the Sabbath is essentially a day of rest, and inasmuch as the rest is for all, every man's share in it should be respected and carefully guarded. Every man's rights are limited by his neighbor's rights. Every man must so use his own liberty as not to infringe his neighbor's liberty. I have a right to the day of rest, but, inasmuch as every other man in the community has the same right, I must take care that in my use of that day I do not hinder others from making the right use of it. On this principle it is that society acknowledges and protects the day of rest, and in so doing has no occasion to decide any religious question. The Constitution of the United States recognizes Sunday as *dies non* for the President. The governments of the several States and of the Union recognize the right of all their functionaries to the Sunday rest, limited only by what each government judges to be "necessity and mercy." The legislation of every State acknowledges, in one way or another, the civil and secular value of the sabbatic institution, and more or less

carefully guards every man's privilege of rest by requiring that all shall rest.

There is a close relation between rest and quiet. A day of dissipation and riotous living is not a day of rest. The Sunday which is followed by "blue Monday" is not a Sabbath; nor does it yield to the individual or to society, to the laborer or to the employer of labor, the benefits which come from the Sabbath. What is it that capitalists are doing when they conspire to abolish the day of rest by turning it into a day of revelry? The managers of railroad corporations, whose Sunday-excursion trains defy the law and the public sense that makes the law, know that they rob the hard-working men in their service, whom they compel to forego the working-man's sacred privilege of weekly rest; nor is it beyond the reach of their discernment that they cheat the heedless customers whom they persuade to turn the day of rest into a day of frolic which is not rest. As the proprietor of a drinking-saloon knows that the dimes which he gathers into his till are the price paid by his customers for personal degradation, for disease in body and mind, for wretchedness at home, and for an unlamented death—as he knows that brawls and fights, with now and then a murder, are the inevitable incidents of his "dreadful trade"; so the proprietors of a Sunday-excursion steamboat know what they are doing. They know that their greed is robbing their servants by compelling them to work on the day of rest. They know that the gain they get from the Sunday excursion is "filthy lucre" at the best, polluted with the "evil communications" that infect the sweltering throng of passengers. They know that by the promise of fresh air and a good time they persuade their customers to substitute a day of dissipation for the quiet rest which would have refreshed them for their six days' work. They know that dissipation is not rest; but what is that to them if their dividends are the greater for other people's dissipation?

In proportion as Sunday becomes a day of dissipation, it ceases to be a day of rest, and in that proportion society loses the benefit of a true Sabbath. The State, therefore, in the interest of productive industry and of the industrial classes, and especially in the interest of the millions whose industry is manual labor, must take care that Sunday shall be for all a quiet day. Without invading the rights of conscience by attempting to enforce a religious observance, it may and must prohibit those uses of the day which are not rest but dissipation, or which impose hard work on one portion of society that another portion may have a frolic. It must put a

strong barrier of law between workingmen's privilege of rest and the power of capital, especially of associated capital, proverbially soulless and heartless.

In its religious and spiritual aspect, the question of Sabbath observance is one over which civil government has no rightful authority—certainly not if the American doctrine of religious liberty and of the relations between church and state is true. While I insist that civil government may recognize the weekly rest as beneficial to the commonwealth, and may therefore provide by law, and by the enforcement of law, that every man shall have the privilege of that rest, I deny that the jurisdiction of the state extends to the religious question. While I maintain the right of the state to prohibit the perversion of the Sabbath to debasing and destructive uses, I deny its right to require that any man shall keep the day otherwise than by abstinence from work. With the great body of the people the Christian Sabbath is a day for public worship. The state may therefore recognize that fact, and may provide that assemblies for worship on the day of rest shall be undisturbed. But the state must not attempt to enforce a religious observance of the day. It can only protect such observance. To me the weekly rest is more than an immemorial tradition, more than an institution beneficial to the commonwealth. To me it is a divine provision for one great need of human nature; a monument more ancient and more enduring than the pyramids; a memorial of the world's Creator and the world's Redeemer; a symbol and foretaste of a better rest hereafter. In my own home and household I may keep the Sabbath holy according to this religious view of its sanctity. But, if I would bring my neighbor thus to keep it, I must remember that I can not compel him by any other compulsion than that of example and persuasion. I may associate with others like minded in a church which celebrates the holy day with public prayer and praise, and with religious inculcation of duty. As a church, united in a spiritual fellowship, we may have our own theory of the Sabbath, and may determine under our responsibility, not to the state but to him whom we acknowledge as our Lord, what observance of the Lord's day is necessary to the religious life, either as a manifestation of it or as a help to its growth. All such things belong not to Cæsar but to God, to the conscience and intelligence of the individual, and to associated intelligence and conscience in the church.

To the individual, then, conscious of his religious nature and of

his relations to God, the question of Sabbath observance presents itself in its religious and spiritual aspect. In this aspect of the question, as in the other, the first thing to be remembered is that word of the Great Teacher, "The Sabbath was made for man." You are human. Inseparable from your nature is that need for which the day of rest was instituted. The Sabbath is for you because you need it. Accept it as a gift from God, not reluctantly as if it were a penance, but thankfully. Then remember that the Sabbath is essentially rest from work. Let your own six days' work stand still; and bring not the worry of the week into the day of rest. Let your household affairs be so arranged that the holy day shall brighten your home with quiet enjoyment, and even the little ones shall welcome the Sabbath as a happy day. But to you the day of rest, whatever it may be to others, is more than simple rest. It has its employments as well as its repose—employments that are themselves repose. To others it may be a day of lazy pleasure; to you it is a day for serious thought and therefore for worship—the holy day—the Lord's day. Let it bring you and yours into the worshiping assembly, not only for the help you may get there, but also for the help you may bring to those who worship with you. In your own home let there be household prayer, redolent alike of tender memories and immortal hope, with lessons of wisdom from above, and with Sabbath music—"psalms and hymns and spiritual songs," hearts and voices making melody to God. Such Sabbath-keeping consecrates the home, and brings into it, in all experience of change, a light from heaven.

The readers of this journal know that what I have described as the proper observance of the Christian Sabbath from the religious point of view is a reality. It was so in the old days of Puritanism. Even then the holy day, though sanctified with more than Jewish rigor, cheered and blessed the home. The same reality exists today in thousands of Christian homes, bridging as it were the distance between earth and heaven.

LEONARD BACON.

THE CAMPAIGN OF 1862.

"Vixere fortes ante Agamemnona."

An able article in the April number, by an author whose reputation is deservedly national, has for its subject "McClellan's Last Service to the Republic," the key-note of which is found in one of its statements, that he was "the General who saved the capital." As this article is written for the purposes and benefit of history, and as the writer is one whose name adds, and with justice adds, weight to anything he may say, history will doubtless be gratified to know that this contribution to its pages can stand examination as to its assertions of fact.

If it indeed be true that, in the campaign of 1862, McClellan was "the General who saved the capital," there are many people of ordinary intelligence who are not as yet sufficiently aware of the fact, and there is much of history upon that subject which is in a state of unparalleled confusion. In truth, such is the want of definite information in the premises, and such the contradictory state of evidence, that there have been those heard to say that, if the "Young Napoleon" left undone anything to insure what the April article terms "the defeat and disorderly retreat of Pope," it has not been hitherto revealed.

It may be that McClellan is the great warrior that admiring friends have claimed him to be. We certainly have no disposition to detract from his just fame; but, in considering whether he is really worthy of being entitled the Great Captain of the age, there are many things in his career to be taken into account.

The glory of the Peninsular campaign will doubtless continue to be entirely his own, and probably no one will dispute his title, or envy the enjoyment which its glory affords. His most vigorous efforts, during that historic period, appear to have been divided

between expressing himself most lugubriously as to the fearful proportions of the enemy in his front; bickering with the Government as to the amount of force under his command—a problem he seems never to have understood; and frantic appeals for reënforcements to an army whose numbers had already demonstrated his incapacity to handle one of any considerable size.

The Peninsular campaign was undertaken against Mr. Lincoln's remonstrance. In a paper dated February 3, 1862, he put a few plain questions, of a common-sense nature, that demonstrated the shallowness of the whole Peninsular idea.

He, however, gave way. He intrusted to McClellan the management of the whole business, only stipulating that sufficient force should be left to make Washington perfectly safe. A council of officers determined in what that safety should consist, and it involved a contingency of about fifty-five thousand men. McClellan went off, forgetting or slighting this little feature of the programme. The matter was referred to Adjutant-General Thomas and General E. A. Hitchcock, who reported thus: "In view of the opinion expressed by the council of the commanders of army corps of the force necessary for the defense of the capital, though not numerically stated, and of the force represented by General McClellan as left for that purpose, we are of the opinion that the requirements of the President, that the city shall be left entirely secure," not only in the opinion of the General-in-Chief, but that of the commanders of the army corps, also "have not been fully complied with."

This report was made April 2d. The day before, with that loose notion of numbers that characterized the General-in-Chief, he had reported to Adjutant-General Thomas that the forces left in front of Washington were fifty-four thousand four hundred and fifty-six men. Not a bad joke, considering the day, when on the next, April 2d, General Wadsworth, with whom these men were supposed to be left and who was charged with the defense of the city, reported that there were under his command only nineteen thousand and twenty-two, of which he says nearly all are "new and imperfectly disciplined." When, therefore, McClellan, who was charged with the defense of Washington as much as he was with the capture of Richmond, made a mistake in his calculations, he had no right to complain because the President merely carried out what he himself had already engaged to do. To that complaint the President gave the following crushing reply, April 9th: "My implicit order, that Washington should, by the judgment of all the commanders

of army corps, be left entirely secure, had been neglected. It was precisely this that drove me to detain McDowell. . . . And allow me to ask, do you really think I should permit the line from Richmond, *via* Manassas Junction, to this city, to be entirely open, except what resistance could be presented by less than twenty thousand unorganized troops? This is a question which the country will not allow me to evade."

When, therefore, it is written in the April article, "From the President down, through the various ranks of politicians by whom he was surrounded, all knew in their hearts that the only reason why McClellan had failed to reach Richmond, and been obliged to execute his flank movement to the James, was because McDowell had been arrested, by express orders from Washington, in his march to effect a junction with McClelian's right," it is submitted that the facts in the case do not shift the responsibility for that failure from the shoulders of McClellan to those of Mr. Lincoln.

On the 5th of April he sat down before Yorktown. He states, "Information which I had collected during the winter placed General Magruder's command at from fifteen to twenty thousand men." April 7th he telegraphs the Secretary of War, "It seems clear that I shall have the whole force of the enemy on my hands—probably not less than (100,000) one hundred thousand men, and probably more." Magruder, the rebel commander at Yorktown, in his official report, makes the following observations: "I was compelled to place in Gloucester Point, Yorktown, and Mulberry Island, fixed garrisons amounting to six thousand men, my whole force being eleven thousand, so that it will be seen that the balance of the line, embracing a length of thirteen miles, was defended by about five thousand men."

It was "the balance of the line" that McClellan besieged, with reference to which Magruder says: "Thus, with five thousand men, exclusive of the garrisons, we stopped and held in check over one hundred thousand of the enemy. . . . The men slept in the trenches and under arms, but, to my utter surprise, he permitted day after day to elapse without an assault."

This is the view our hero took of the five thousand rebels, and their mud fences: "I made, on the 6th and 7th, close personal reconnaissance of the right and left of the enemy's positions, which, with information acquired already, convinced me that it was best to prepare for an assault by the preliminary employment of heavy guns and some siege operations. Instant assault would have been simple folly."

And here the Great Captain remained, from the 5th of April until the 4th of May, when, as he states, "our batteries would have been ready to open on the morning of the 6th of May at latest; but on the morning of the 4th it was discovered that the enemy had already been compelled to evacuate his position during the night."

That faction of the American people who have not habitually regarded McClellan as a demi-god have at times indecorously asserted that there never was a period in his whole military career when he was absolutely "ready" to do anything. It will, however, be seen, in the light of history, that he was ready to open his batteries on the 6th, on the enemy, they having vamosed upon the 4th.

This pause of a month in front of Yorktown was not with the entire approbation of the authorities, judging from certain expressions of President Lincoln, to this effect: "The country will not fail to note, is now noting, that the present hesitation to move upon an intrenched enemy is but the story of Manassas repeated." On the 1st of May the President telegraphs: "Your call for Parrott guns from Washington alarms me, chiefly because it argues indefinite procrastination. Is anything to be done?"

But if the knowledge he had of the enemy's forces was abounding, the amount of information he did not possess with regard to his own appears to be still more voluminous. April 7th, he telegraphed to the President that he had but eighty-five thousand men, to which the President replied: "There is a curious mystery about the number of troops now with you. When I telegraphed you on the 6th, saying you had over a hundred thousand with you, I had just obtained from the Secretary of War a statement taken, as he had said, from your own returns, making one hundred and eight thousand men then with you and *en route* to you. You now say you will have but eighty-five thousand when all *en route* to you shall have reached you. How can the discrepancy of twenty-three thousand be accounted for?"

The report of the assistant Secretary of War, John Tucker, April 5th, states that, prior to this date, there were landed at Fort Monroe one hundred and twenty-one thousand five hundred men. Why it was that the General-in-Chief never seemed to know how many men he had under him does not appear. Perhaps he was appalled at the task of attempting to count them.

If, with an army of one hundred thousand men, to be held at bay for a month by five thousand; to be compelled to dig trenches,

throw up works, mount siege-guns, and make regular approaches against a force insignificant in everything except their impudence in not running incontinently away—if this be evidence of generalship, then indeed was McClellan Napoleonic.

It will be remembered that the route to Richmond *via* the Peninsula was McClellan's favorite idea. Mr. Lincoln, acting, doubtless, upon consultation with competent military advisers, was opposed to it. The failure of the campaign illustrates the weakness of this idea, and it is further demonstrated by the success of the one upon the direct route which had its culmination at Appomattox. In undertaking, therefore, such a campaign—undertaking it, too, in opposition to the most authoritative views, involving, as it was supposed to do, the fate of the republic—one would suppose that a competent military commander would at least endeavor to know something of what he was about. Perhaps there are depths in military genius and military strategy which, to the common mind, are past finding out, but it would naturally occur to a traveler, about to set forth to a distant point, to endeavor to find out how he was going to get there. It would seem to be the part of a general intending to invade an enemy's country to definitely ascertain what the topography of that country was, and what facilities for movement existed. In this connection some of McClellan's observations are pertinent.

As for instance: "Maps, which had been prepared by the topographical engineers under General Wool's command, were furnished me, in which the Warwick River was represented as flowing parallel to but not crossing the road from Newport News to Williamsburg, making the so-called Mulberry Island a real island; and we had no information as to the true course of the Warwick *across* the Peninsula, nor of the formidable line of earthworks which it covered." And again: "In the commencement of the movement from Fort Monroe serious difficulties were encountered from the want of precise topographical information as to the country in advance. Correct local maps were not to be found, and the country, though known in its general feature, we found to be inaccurately described in essential particulars in the only maps and geographical memoirs or papers to which access could be had. Erroneous courses to streams and roads were frequently given, and no dependence could be placed on the information thus derived. This difficulty has been found to exist with respect to most portions of the State of Virginia, through which my military operations have extended.

Reconnaissances, frequently under fire, proved the only trustworthy sources of information. Negroes, however truthful their reports, possessed or were able to communicate very little accurate and no comprehensive topographical information." Mitchell's "Geography" therefore, as it appears, was entirely inadequate to the occasion, and that streams ran up instead of down, and that roads were promiscuous with reference to the points of compass, was doubtless confusing to a military chieftain who was surprised to discover that "no comprehensive topographical information" could be extracted from contrabands. His acquaintance, therefore, with the three following facts being imperfect—first, the number of the enemy he was about to confront; second, the number of men he was about to confront them with; third, the character of the country he was about to confront them on—there would appear to be eliminated from the military problem the three elementary factors which make it at all interesting.

If in all of McClellan's numerous letters, dispatches, and communications from the Peninsula there is anything that is at any time encouraging, bold, or even hopeful, it is exceedingly difficult to discover; upon the contrary, his entire correspondence might be described as one continued wail. When in front of the five thousand men in buckram, spoken of, he writes, April 7th, "In consequence of the loss of Blenker's division and the First Corps, my force is possibly less than that of the enemy, while they have all the advantages of position"; and in another part of the same: "With this army I could assault the enemy's works, and perhaps carry them; but, were I in possession of their intrenchments and assailed by double my numbers, I should have no fears as to the result." On the 10th of May he represents to the Secretary of War that the enemy are collecting all the force they can, and concentrating their best troops; that casualties and sickness are reducing his own numbers, and, "if I am not reënforced, I will be obliged to fight nearly double my numbers strongly intrenched." Four days afterward he repeats almost the same language. The enemy are always in excellent condition, while his army is being continually thinned out; and fighting "double his numbers" is a favorite expression.

May 21st he says, "All accounts report their numbers as greatly exceeding our own." He impresses upon the Government that the rebels have made every preparation for a desperate battle in front of Richmond, and, from the frequency with which this sur-

prising information is repeated, we are led to ask, what else was expected?

It had been satisfactorily ascertained, as early as 1861, that the South had not seceded, nor had Southerners inaugurated rebellion, just for the fun of the thing. They were fearfully in earnest. If there was one characteristic for which they were more conspicuous than another it was that, day and night, in season and out of season, they were completely and thoroughly "desperate." And if the Peninsular campaign was evolved from any consciousness that anticipated the subjugation of Dixie, by measures so pacific that they would feel anxious to kiss the rod that smote them, evidently there was a mistake somewhere. And yet, with an invading army of a hundred thousand men, marshaled with all the pomp and circumstance of glorious war, within gunshot of the inner citadel of treason, information that a serious battle might be expected was of that kind which the press is accustomed to head-line as "important if true!"

But it would be tedious to follow in detail all the Peninsular dispatches which seem to breathe simply a spirit of despair. Their tenor is invariably the same: "I regard it as certain that the enemy will meet us with all his force on the Chickahominy. They can concentrate many more men than I have, and are collecting troops from all quarters. . . . . Duty requires me to urge that every effort be made to reënforce me. . . . The enemy are concentrating all their available force to fight this army. . . . I can not bring into actual battle against the enemy more than eighty thousand men at the utmost, and with them I must attack in position, probably intrenched, a much larger force, perhaps double my numbers. . . . I ask for every man that the War Department can send me. . . . I believe that there is a great struggle before this army; but I am neither discouraged nor dismayed."

This is much like whistling in the dark.

It is not wonderful that this continued and distressful cry provoked from the amiable Mr. Lincoln the rather pungent remark, "I think the time is near when you must either attack Richmond or give up the job and come to the defense of Washington."

These were the kind of dispatches that were being daily sent to Washington, up to the time that the Great Commander, astraddle of the Chickahominy, had thrown his right wing clear into the air, so that it was "resting," as it is termed, in military parlance, on Stonewall Jackson, who at the proper time inaugurated the famous

"change of base," as it is still called—a movement which the Northern public for a few weeks believed was a triumph in military strategy, but which fuller knowledge made somewhat less glorious.

Another General, under circumstances perhaps quite as difficult as those under review, dispatched to his Government, "I intend to fight it out on this line if it takes all summer."

Before leaving the "change of base," it is desirable to form some idea, approximate at least, as to the relative forces in the Peninsular campaign.

The number of men composing the Army of the Potomac, from the official returns (report of Committee on the Conduct of the War, vol. i, p. 323), was—present for duty April 30, 1862 (112,392), one hundred and twelve thousand three hundred and ninety-two. This was a few days before McClellan telegraphed to the Secretary of War (vol. i, Supplement to "Rebellion Record," p. 564), "If I am not reënforced, it is probable that I will be obliged to fight nearly double my numbers, strongly intrenched." From report of the same committee, vol. i, p. 337, there were present for duty June 20, 1862 (115,102) one hundred and fifteen thousand one hundred and two. On the 20th July, 1862, there were present for duty, same report, vol. i, p. 344, (101,691) one hundred and one thousand six hundred and ninety-one. These reports were all made by Assistant Adjutant-General Seth Williams, signed by General McClellan, and there is, therefore, a grave suspicion that they are correct and entirely reliable.

In a book published by Colonel W. H. Taylor, a staff-officer of General Lee, entitled "Four Years with General Lee," he says (page 49) that a statement on file in the archives-office of the rebel War Department shows that, on the 21st of May, 1862, General Johnston had present for duty (53,688) fifty-three thousand six hundred and eighty-eight; to those he states certain other numbers should be added, making that force, on the 31st of May, 1862 (62,696), sixty-two thousand six hundred and ninety-six. At the battle of Seven Pines, or Fair Oaks, Johnston fell severely wounded, when Lee assumed command. Deducting the losses of that affair, as taken from official reports, Taylor gives Lee's effective force as (56,612) fifty-six thousand six hundred and twelve. Previous to the seven days' battles Lee was reënforced, increasing his numbers to (80,762) eighty thousand seven hundred and sixty-two. The reports of the rebel division commanders give about the same result, as shown in "Reports of the Operations of the Army of

Northern Virginia under General Lee, published by authority of the Confederate Congress" (vol. i, pp. 151–368, 190, 371–385, 173, 187, 270).

McClellan's report of killed, wounded, and missing, from the 26th of June to the 1st of July inclusive, which takes in the whole series of battles, including Malvern Hill, was (15,249) fifteen thousand two hundred and forty-nine. (See his report, Supplement to "Rebellion Record," p. 593.) Deduct this loss from his returns of June 20th, and he still had near (100,000) one hundred thousand men. In his testimony before the Committee on the Conduct of the War (vol. i, p. 437), he says he had eighty-five thousand or ninety thousand, so that at the end of the fight he had more than Lee at the beginning. The change of base, therefore, was a peculiar feature of vigorous warfare, if the comparison of numbers be at all reliable. If it was considered at the time as a brilliant and successful operation by either McClellan or the Government, both had a queer style of correspondence upon the subject.

McClellan, June 28th, says: "Our men did all that men could do, all that soldiers could accomplish, but they were overwhelmed by vastly superior numbers, even after I brought my last reserves into action. The loss on both sides is terrible. I believe it will prove to be the most desperate battle of the war. The sad remnants of my men behave as men. . . . I have not a man in reserve, and shall be glad to cover my retreat and save the material and *personnel* of the army. . . . If we have lost the day, we have yet preserved our honor, and no one need blush for the Army of the Potomac. I have lost this battle because my force was too small. . . . . If I save this army now, I tell you plainly that I owe no thanks to you, or to any other persons in Washington. You have done your best to destroy this army."

The first remark that one is disposed to make, in contemplating such a dispatch as this, is somewhat of the following nature:

Considering that it was addressed to the Secretary of War, the immediate representative of the President, who is the Commander-in-Chief of the Army and Navy of the United States, and by an inferior, at least in rank, the perfect good temper, the entire respect, the calm philosophy, the unshaken courage which it evidences, and the spirit of gentle subordination with which it is redolent, become manifest as soon as mentioned.

And again, if this be the language of a successful chieftain just achieving a "change of base," the unlearned in military terms

would seek to know the precise meaning of that portentous phrase. Upon an historic American occasion, when the British marched up Bunker Hill, and then went down again two or three several times with entire unanimity and perceptible precipitation, they undoubtedly effected a "change of base." Speak of "the retreat from Moscow," and a Frenchman gnashes his teeth at the profanation offered to what the merry nation still delight to honor as "un grand rétrograde mouvement." Were the old Napoleon alive, perhaps he might avail himself of the nomenclature of the young one.

While the base was in process of changing, evidently not aware what a brilliant triumph was being thrust upon him, Mr. Lincoln, June 28th, telegraphed, in reply to the dispatch last quoted, "Save your army at all events." July 1st the General says: "My men are completely exhausted, and I dread the result if we are attacked to-day by fresh troops. . . . I now pray for time."

July 1st Mr. Lincoln says: "If you are not strong enough to face the enemy, you must find a place of security, and wait, and rest, and repair. Maintain your ground if you can, but save the army at all events." And the next day, "Save the army, material, and *personnel*."

Whatever it may be called, the movement to the James was the running away of a vastly superior force from a vastly inferior one, and the panic created occasioned a perfect stampede of all the intellectual and moral qualities of the Union leader. He even issued an order for the destruction of the baggage of officers and men. Candor requires the statement that General McClellan says he does not remember issuing such order. The evidence on the point is the testimony of Lieutenant-Colonel S. B. Alexander (1 Com. Cond. War, p. 592). He states that, on the afternoon of the 28th, he was sent for by McClellan, and repaired to headquarters, then at Savage Station. He was there shown a printed order directing the destruction of the baggage of the officers and men, and "I think also the camp equipage; appealing to the officers and men to submit to this privation, because it would be only temporary—only for a few days." Alexander remonstrated with McClellan against issuing such an order, on the ground that it would demoralize both officers and men, and "would tell them more plainly than in any other way that they were a defeated army, and running for their lives."

The testimony of a witness, who states that he saw this order, is not countervailed by that of General McClellan, who assevers that he does not remember it.

There is one statement in the April article to which attention will now be given: "Every part of the army which he had lately commanded went forward to be under Pope's command. McClellan took nothing with him but his personal staff, a few orderlies, and the infantry guard of his headquarters—about five hundred men, all told. He encamped with them at Alexandria, in a field near the river, about half a mile above the town, and reported for orders. There he was employed in forwarding troops and ammunition to Pope until the 30th." In his report of October 15, 1862, General McClellan says: "The troops composing the Army of the Potomac were meanwhile ordered forward to reënforce the army under General Pope. So completely was this order carried out, that on the 30th of August I had remaining under my command only a camp-guard of about one hundred men. Everything else had been sent to reënforce General Pope. In addition, I exhausted all the means at my disposal to forward supplies to that officer, my own headquarter teams even being used for that purpose."

As General Pope was fighting the battles which involved the safety of Washington, the above statements show that General McClellan is fairly entitled to be termed the "General who saved the capital," and it will therefore be our purpose to demonstrate the absolute verity of those statements.

On the 3d of August Halleck telegraphed McClellan that it was determined to withdraw his army to Aquia Creek, and that he must take immediate steps to that end. Against this McClellan protested, but the order was repeated the next day. Full advice as to the importance of this action was given, for on August 9th Halleck telegraphs: "I am of the opinion that the enemy is massing his forces in front of Generals Pope and Burnside, and that he expects to crush them, and move forward to the Potomac. You must send reënforcements instantly to Aquia Creek. Considering the amount of transportation at your disposal, your delay is not satisfactory. You must move with all possible celerity." McClellan asserts that there has not been an hour's delay. Again, on August 10th, Halleck shows the dangerous emergency: "The enemy is crossing the Rapidan in large force. They are fighting General Pope to-day. There must be no further delay in your movements; that which has already occurred was entirely unexpected, and must be satisfactorily explained. Let not a moment's time be lost, and telegraph me daily what progress you have made in executing the order to

transfer your troops." McClellan again insists that there has been no delay.

McClellan reached Aquia Creek August 24th, and reported to Halleck for orders. The battle of second Bull Run was on the 29th and 30th of August.

The following series of remarkable dispatches shows the urgent, pressing commands of the General-in-Chief to reënforce Pope; and they also show how they were obeyed by the General who was in the process of "saving the capital":

At 11 A. M., August 26th, Halleck telegraphs, "General Franklin's corps will march as soon as it receives transportation."

"Transportation" is generally the rock upon which all great military commanders split. It is the unfailing excuse for everything that goes wrong. If a given movement fails of successful accomplishment, the stereotyped reply is given, "Want of transportation," probably meaning that the Government mules had not breakfasted in time for the contemplated operations. But in this case the mules can not be held responsible, for, in a dispatch of Halleck's, dated August 30th, speaking of Franklin's failure to move, he says, "Moreover, I learned last night that the quartermaster's department would have given him plenty of transportation if he had applied for it at any time since his arrival at Alexandria."

On the 27th Halleck says: "Porter reports a general battle imminent. Franklin's corps should move out by forced marches, carrying three or four days' provisions, and to be supplied as far as possible by railroad." The battle-field was not many miles from Alexandria.

Upon this same 27th Ewell's division of Jackson's corps had struck Hooker, and a sharp fight took place. The urgency was plainly indicated. Forced marches and carrying provisions on their backs impart the notion that the men are needed, and needed quickly. But did Franklin go? Did he even start? Did he make a pretense of starting? Not at all. He was not there for any such purpose; and, therefore, upon the same day, at ten o'clock A. M., Halleck again telegraphs, "Franklin's corps should move in that direction (Manassas) as soon as possible." To which we have this distinguished reply from General McClellan, "I have sent orders to Franklin to prepare to march with his corps at once, and to repair here in person to inform me as to his means of transportation." Transportation again! How not to do it. Franklin is ordered to

"prepare" to march, and by "preparation" McClellan seems to have understood the waiting until it was just a little too late.

The transportation question must have been of fearful proportions, in view of the fact that the march to be made was about twenty miles. It was a question which required a council of war, which McClellan and Franklin proceeded to hold, arriving at the conclusion that, under the circumstances, nothing whatever could under any possibility be done. For, at 12.5 P. M. of the same day, McClellan again telegraphs: "My aide has just returned from General Franklin's camp; reports Generals Franklin, Smith, and Slocum are all in Washington." A proper place for corps commanders to be, who have been ordered to make forced marches to meet an enemy! In the same dispatch, McClellan further says, "He (my aide) gave the order to the next in rank to place the corps in readiness to move at once." No marching—no moving—no doing anything—but the problem of eternal indefiniteness—getting ready to do something. Halleck's directions were to march, and march at once—directions given at 11 A. M. of the 26th. It is now 12.5 P. M. of the 27th. Twenty-five hours and five minutes have passed, and the corps is still ordered to get ready.

At 1.15 of the 27th McClellan says: "Franklin's artillery have no horses except for four guns without caissons. I can pick up no cavalry. In view of these facts will it not be well to push Sumner's corps here by water as rapidly as possible, to make immediate arrangements for placing the works in front of Washington in an efficient state of defense? I have no means of knowing the enemy's force between Pope and ourselves. Can Franklin without his artillery or cavalry effect any useful purpose in front? Should not Burnside take steps at once to evacuate Falmouth and Aquia, at the same time covering the retreat of any of Pope's troops who may fall back in that direction? I do not see that we have force enough in hand to form a connection with Pope, whose exact position we do not know. Are we safe in the direction of the Valley?"

This dispatch shows that he knew Jackson to be between Pope and himself, in exactly the position to be caught and crushed to powder. Had Franklin's corps promptly marched, that result would have inevitably followed. But did the Peninsular chieftain seize the golden opportunity? Did he send a man to the relief of his comrades in arms? Not one! He occupies himself with furnishing excuses to justify complete inaction. There are no horses for the artillery, or the mules are on a strike. He calls instant attention

to every possible question but the vital one of succoring Pope. He makes suggestions, the effect of which is, that the energies of the Government shall be engaged in other matters than those going on at the battle-field in front; and, had Halleck heeded those suggestions, the Army of the Potomac would again have been set to work digging holes in the ground. Singularly enough, he says that, though he does not know the force of the enemy between "Pope and ourselves," still we have not force enough to "form a connection with Pope." It would be undignified to call this subterfuge, and, as Mrs. Nickleby said, "let us be genteel or die." But that prescience is wonderful which, though ignorant of the numbers before it, is still certain that its own is unequal to an attack. "The retreat of any of General Pope's troops!" Was that what he was expecting? Was that what he was manœuvring for?

Still again upon the 27th—a day of fearful importance, when the Government was straining every nerve to save itself from destruction—upon the 27th Halleck once more telegraphs: "The enemy seem to be trying to turn Pope's left. Is there no way of communicating with him?" Is this the cry of despair? Is it the cry for succor to the only hand that can help, to the only arm that outstretched can save, with the consciousness that that hand will be stayed and that arm not raised? "Hope for a season bade the world farewell."

So late as 6 P. M. of the 27th McClellan says: "I now have at my disposal about ten thousand of Franklin's corps, about twenty-eight hundred of General Tyler's brigade, and Colonel Tyler's First Connecticut Artillery, which I recommend should be held in hand for the defense of Washington." In face of the peremptory orders, as already given, he has the coolness to say, "If you wish me to order any part of this force to the front, it is in readiness to march at a moment's notice to any point you may indicate."

And thus the 27th of August passes into the twilight of history, and not yet has McClellan marshaled his hosts for the relief of the fighting braves upon the plains of Manassas.

August 28th dawns upon the strife. Halleck telegraphs to Franklin: "On parting with General McClellan, about two o'clock this morning, it was understood that you were to move with your corps to-day toward Manassas Junction to drive the enemy from the railroad. I have just learned that the General has not yet returned to Alexandria. If you have not received his order, act on this."

Did General Franklin "act on this" order? Did he move? Did he move on the 28th? Not a bit of it, although at 11 A. M. of the 26th his corps had been ordered to march at once. As General Franklin was a subordinate, it is to be supposed that he would have obeyed the behests of highest authority, had not some unseen and malign influence restrained him. It is only inferable that General Franklin handed this dispatch over to McClellan, who directed him not to comply.

No other influence is justifiable from the facts, for this is McClellan's reply, sent at 1 P. M., and it is given in full:

ALEXANDRIA, VIRGINIA, *August* 28, 1862.—1 P. M.

Your dispatch to Franklin received. I have been doing all possible to hurry artillery and cavalry. The moment Franklin can be started with a reasonable amount of artillery he shall go. In the mean time see Whipple's dispatch. Something must be done in that direction. Please see Barnard, and be sure that the works toward the chain-bridge are perfectly secure. I look upon these works, especially Ethan Allen and Marcy, as of the first importance. I have heard incidentally that there is no garrison in Ethan Allen, but presume it is a mistake. I have just conversed with Colonel Holabin, and think the enemy is in so much force near Manassas as to make it necessary for us to move in force.

GEORGE B. MCCLELLAN,
Major-General commanding.

General H. W. HALLECK, *General-in-Chief.*

Upon reading this dispatch and reply, the conclusion forces itself that McClellan proposed not only to do nothing himself, but not to allow any one else to do anything. From a condition of passive inactivity, he now proceeds to a state of active interference, to accomplish prevention. Let alone, Franklin would have been compelled to go ahead, or run the risk of being shot; and, now that there is actual danger of prompt measures being taken, McClellan is the man who puts a quietus on the entire proceeding. But this reply will bear further contemplation. Franklin is not ready. As soon as he has cannon he shall go! "A reasonable amount of artillery"! This was the very force which the day before McClellan had stated was ready "to march at a moment's notice"; and there is nothing to show that his "artillery" had, in the mean time, been captured by the enemy or sold for old iron.

The *ensemble* of this whole reply is profoundly impressive. The vast number of things in which General McClellan's powerful mind is patriotically interested is wonderful. The vital business, at the

front, the crisis and climax of destiny, does not arrest the fleeting thought. "Whipple's dispatch" overburdens the intellect. Whether Whipple was discoursing upon the number of baked beans the army should consume upon the morrow, or was eloquent upon some other equally important subject, matters not. Moreover, there was "Barnard" and the "chain-bridge," "works" which needed security. "Works" were General McClellan's strong point. He never had any faith without works, and his mind tended so strongly in this direction that he forgot all else. Of the various matters in this reply, evidently demanding the attention of the General-in-Chief, there is no mention of Pope.

There is nothing said of the situation upon which, in reality, all depended, and in comparison with which Whipple and the chain-bridge were mere insignificances. The only approximation is the statement that there is such a force at Manassas that we ought "to move in force"—a remarkable discovery to be made at this period of time, but still one that does not quicken the apathy that had settled upon the brain and will of the commander of the Army of the Potomac. In reading this reply dispassionately, remembering the fearful circumstances of the hour, does it read as coming from one whose whole soul and heart were enlisted in the service of his country?

August 28th, at 3.30, Halleck says, "Not a moment must be lost in pushing as large force as possible toward Manassas so as to communicate with Pope before the enemy is reënforced." Halleck sees, Halleck knows the *point d'appui*. Pope is the man. On him rest the hopes of the hour, the day, the age. On that name Halleck rings the changes day after day. But the trumpet-call from the "General-in-Chief" falls upon ears that are dull—dull and heavy to sounds that should have touched every chord of a soldier's heart, and caused his blood to bound with eagerness for the fray. All other things are forgotten by the General-in-Chief. Ethan Allen, chain-bridge, works, are thrown to the winds. Pope was the man to be helped. On the point of his sword the battle balanced. It was Pope whom Halleck on August 21st had ordered: "Dispute every inch of ground, and fight like the devil, till we can reënforce you. Forty-eight hours more, and we can make you strong enough. Don't yield an inch if you can help it." And Pope obeyed his orders to "fight like the devil!" Impious simile! But, had his Satanic Majesty been a witness to the fact in those fields of heroism and carnage, he would have recognized the likeness upon the instant.

At 4.10 McClellan replies: "General Franklin is with me here. I will know in a few minutes the condition of artillery and cavalry. We are not yet in a condition to move; may be by to-morrow morning." At 4.45 he says: "Your dispatch received. Neither Franklin's nor Sumner's corps is now in condition to move and fight a battle. It would be a sacrifice to send them out now. I have sent aides to ascertain."

Just here, perhaps, it may be as well to see what "Old Bull" Sumner says of these matters: "I embarked, as I have stated, at Newport News. When I arrived at Aquia Creek I immediately detached one of my brigades by railroad, and they advanced to Fredericksburg. Before I could debark all my command, I received orders to proceed directly to Alexandria. I therefore reëmbarked the brigade, and proceeded up the river to Alexandria. I landed there, and took possession of my former camp on the Little River Turnpike, about two miles from town. I remained there twenty-four hours. I was then ordered to retrace my steps through Alexandria, and to march with my command up to the Aqueduct bridge at Georgetown. I made the march during the night, and placed my troops in bivouac near that bridge the next forenoon. When I had been there about three hours I received an order to move with my command as rapidly as possible. . . . If I had been ordered to advance right on from Alexandria by the Little River Turnpike, I should have been in that second Bull Run battle with my whole force. As it was, I lost some forty-eight hours by remaining in camp for a time near Alexandria, and then marching up to the Aqueduct bridge." . . .

Question. "In your judgment, what would have been the effect had you immediately, upon landing at Alexandria, been ordered to join General Pope with your command? Would it not have saved his army from defeat, and prevented the rebels from invading Maryland?"

Answer. "I can say this: that had I, upon landing at Alexandria, been ordered forward immediately, I should have been in the second Bull Run battle with my corps."

Question. "How many men had you in your corps at that time?"

Answer. "About ten thousand, I presume."

Question. "Under whose orders were you acting, before you communicated with General Pope?"

Answer. "Under orders from General McClellan—orders trans-

mitted through him from General Halleck." (1 Committee on the Conduct of the War, p. 367.)

The old veteran did not seem to know that his corps was in no "condition to move and fight a battle." Upon the other hand, had he received the orders, he would "have been in the second Bull Run battle with my corps." Condition or no condition, he was ready for a fight, waiting like a hound in the leash for the order to spring. He waited forty-eight hours, the thunder of battle in his ears, the roar of cannon shaking the windows in houses at Alexandria, but the order did not come. McClellan did not give it, but was holding him back with flimsy pretexts of not being ready.

Herman Haupt was master of transportation, in charge of moving troops and supplies by rail from Alexandria to the front. He states that he first met McClellan at Alexandria August 27th. "While here I communicated to him the information that General Taylor had made an attack upon a force of the enemy at Manassas, had suffered a repulse, and was wounded; that Colonel Scammon was holding Bull Run bridge with a force of fifteen hundred men."

Question. "What action did General McClellan take upon the information which you communicated?"

Answer. "He decided that it would not be safe to send an expedition to reënforce the command of General Scammon until he could get further information of the number and position of the enemy." This was on the 27th, after McClellan had received the order from Halleck, "Franklin's corps should march in direction (Manassas) as soon as possible"; to which McClellan replies at 10.40 that he had ordered Franklin to "prepare to march." Ten minutes afterward, or 10.50 A. M., of the 27th, Halleck telegraphs Haupt to see McClellan. The interview takes place, with the result above stated, and in the face of the order from his superior, with the reply made indicating his intention to comply, he deliberately informs Haupt that "it would not be safe" to send out an expedition as he had been ordered. In this interview Haupt further says:

Question. "Did you recommend that the command should be reenforced?"

Answer. "I was very anxious that it should be either reënforced or relieved. I wished to bring off the remainder of General Taylor's command, and, if I had not found General McClellan, would certainly have sent out a force that afternoon."

Question. "Had you reason to believe that this movement could have been made successfully?"

Answer. "I thought the circumstances were such as to justify some risk, and, as General McClellan did not seem willing to send a force for the reasons assigned, I determined to assume the responsibility of making a reconnaissance the following morning unless positively forbidden. I accordingly sent General McClellan the following telegram:"

August 27, 1862.

I propose to start at four o'clock, precisely, a wrecking and construction train bound for Bull Run, also a forage train and a subsistence train. It is, perhaps, proper that two hundred good skirmishers should be sent with the trains, who should be at the depot at Alexandria before 4 A. M. to-morrow morning. General Pope will be notified by courier to-night to have his wagons ready at Sangster's Station by daylight to-morrow. If the troops are not here by 4 A. M. we purpose to go ahead without them.

Major-General McCLELLAN. H. HAUPT."

(Parenthetically we pause to do reverence to the pluck of the gallant Haupt. In the face of a danger that appalled "the General who saved the capital," and froze him into a state of timorous quiescence, Haupt proposed "to go ahead without them.")

Haupt continues, "No reply having been received within the time designated, I sent out the train." (1 Committee on the Conduct of the War, p. 379.) Haupt makes this further statement, in the same volume, p. 384:

Question. "Were the troops of the Army of the Potomac in condition for service when landed at Alexandria?"

Answer. "The troops were fed from the transports, and could have marched to Manassas in one fourth the time required to reach that point by waiting for transportation; besides, if the troops had marched, they could have better supported each other. The railroad, with the frequent breaks from rebel raids, was taxed nearly to its capacity to furnish supplies. I believe that, if the troops, when landed from the transports, had been marched immediately to Manassas instead of waiting several days for rail transportation, they could have rendered efficient support to General Pope, and would, no doubt, have changed the result of the contest by giving us a decisive victory, but I don't know who was responsible for this delay; there may have been reasons for not moving which I did not understand."

It will be remembered that Jackson, with that headlong daring which partook more of valor than discretion, had come through Thoroughfare Gap at least two days ahead of the rest of Lee's

army. On the afternoon of the 27th he had a fight with Hooker, and was exactly between Pope and Washington. On the night of the 27th he burned Manassas Junction, and moved north through Centreville. If anything is plain, it is that, had Franklin's corps been pushed promptly out as ordered, he would have met Jackson face to face. Thus brought to a stand, Pope's whole army would have been upon his rear on the 28th, with Lee and Longstreet a day's march away.

But let us resume the dispatches of the 28th, for upon that day Gibbon had his fight, and then followed the battles of the 29th and 30th.

At 8.40 P. M. of the 28th Halleck telegraphs: "There must be no further delay in moving Franklin's corps toward Manassas. They must go to-morrow morning, ready or not ready. If we delay too long to get ready, there will be no necessity to go at all; for Pope will either be defeated or victorious without our aid. If there is a want of wagons, the men must carry provisions with them till the wagons can come to their relief."

It is noticeable that this dispatch, as well as the previous one of 4.45, and also others, do not appear in McClellan's report as published in Supplement to "Rebel Record," p. 612. McClellan answers: "Franklin's corps has been ordered to march at six (6) o'clock to-morrow morning. Sumner has about (14,000) fourteen thousand infantry, without cavalry or artillery, here. Cox's brigade of four regiments is here, with two batteries of artillery; men of two regiments, much fatigued, came to-day. Tyler's brigade, of three new regiments but little drilled, is also here. All these troops will be ordered to hold themselves ready to march to-morrow morning; and all except Franklin to await further orders. If you wish any of them to move toward Manassas, please inform me.

. . . . Reports numerous, from various sources, that Lee and Stuart with large forces are at Manassas; that the enemy, with one hundred and twenty thousand men, intend advancing on the forts near Arlington and chain-bridge, with a view to attacking Washington and Baltimore."

This dispatch shows that he was holding in hand at least thirty thousand men. All this day of the 28th, all the preceding day of the 27th, Halleck had been ordering him to send men forward, and he complacently says, "If you wish any of them to move, please inform me."

To a true soldier, there was no need of any such order. The

roar of battle sounding in his ears should have been enough to have called him to the front, or at least to have induced him to let his men go.

August 29th, at 10.30 A. M., he says: "Franklin's corps is in motion; started about six (6) A. M. I can give him but two squadrons of cavalry. . . . If Sumner moves in support of Franklin, it leaves us without any reliable troops in and near Washington; yet Franklin is too much alone. What shall be done? . . . Franklin has but forty rounds of ammunition, and no wagons to move more. I do not think Franklin is in a position to accomplish much if he meets strong resistance. I should not have moved him but for your pressing order of last night." An hour and a half after, at 12 M., he says: "Do you wish the movement of Franklin's corps to continue? He is without reserve ammunition and without transportation." A few moments later he telegraphs: "Franklin has only between ten thousand and eleven thousand ready for duty. How far do you wish this force to advance?" At 1 P. M. he says, "Shall I do as seems best to me with all the troops in this vicinity, including Franklin, who I really think ought not, under the present circumstances, to proceed beyond Anandale?"

General Halleck must have been possessed of an angelic temper to be receiving this kind of dispatches when, two days before, he had ordered Franklin to move at once, and move to Manassas; and, indeed, his ire does seem to begin to awaken, in at least some small degree, for he replies at 3 P. M.: "I want Franklin's corps to go far enough to find out something about the enemy. . . . Our people *must* move more rapidly and find out where the enemy is. I am tired of guesses."

The next dispatch is, perhaps, the most remarkable of any in all this series of remarkable documents. It was sent at 2.45 P. M. of the 29th:

HEADQUARTERS ARMY OF THE POTOMAC NEAR ALEXANDRIA, VIRGINIA,
August 29, 1862, 2.45 P. M.

The last news I received from the direction of Manassas was from stragglers, to the effect that the enemy were evacuating Centreville, and retiring toward Thoroughfare Gap. This is by no means reliable.

I am clear that one of two courses should be adopted: first, to concentrate all our available forces to open communication with Pope; second, to leave Pope to get out of his scrape, and at once use all our means to make the capital perfectly safe. No middle course will answer now. Tell me what you wish me to do, and I will do all in my power to accomplish it. I wish to know what my orders and authority are. I ask for nothing, but will

obey whatever orders you give. I only ask a prompt decision, that I may at once give the necessary orders. It will not do to delay longer.

GEORGE B. MCCLELLAN, *Major-General.*

A. LINCOLN, *President.*

Under all the circumstances of the case—with a continuous series of battles raging for two days within his immediate hearing, battles upon which the fate of the republic hung, battles that must result as he chose they should result, by his giving or withdrawing aid, with the orders from headquarters that had been raining on him, urging, commanding him to render that aid upon the instant—it is difficult to speak of this dispatch and preserve equanimity. "To open communication with Pope" was what he was brought from the Peninsula for. It was what his superiors had directed him to do, not once, nor twice, nor thrice, but at least six times within forty-eight hours. It is not pretended that McClellan did not understand the English language; and, with all this multiplication of orders before him, he suggests "to open communication with Pope," as though the idea had not occurred to him before—as though he were broaching a novelty to General Halleck! It is now, however, a proposition that is "clear" to him.

The next suggestion is "to leave Pope to get out of his scrape."

Was ever such proposition before made by a soldier in regard to a companion in arms? Had he put those words into actual deeds instead! Had he upon the field of battle run away from his compatriots and left them "to get out of their scrape," he would have been shot for his cowardice, or hung for his treachery. He is not guilty of these things, for, although the willingness is evinced, the opportunity is not afforded.

When he says to the President that he only wants to know what to do and will do it, he exhibits a sarcastic irony that shows him to be an artist in language. Having for two whole days disobeyed every order sent him, he declares his readiness to "obey whatever orders you give."

Up to this time it appears that absolutely nothing has been done. McClellan is idling away his time in Alexandria, receiving orders that, as far as any practical result is concerned, might just as well have been sent to the Sandwich Islands. At 7.50 P. M. Halleck again telegraphs: "You will immediately send construction trains and guards to repair railroad to Manassas. Let there be no delay in this. I have just been told that Franklin's corps stopped at Anandale, and that he was this evening in Alexandria. This is

all contrary to my orders. Investigate and report the fact of this disobedience. That corps *must* push forward, as I directed, to protect the railroad and open communication with Manassas."

McClellan replies: "It was not safe for Franklin to move beyond Anandale, under the circumstances, until we knew what was at Vienna. General Franklin remained here until about 1 P. M., endeavoring to arrange for supplies for his command. I am responsible for both these circumstances, and do not see that either was in disobedience to your orders. Please give distinct orders in reference to Franklin's movements of to-morrow. . . . In regard to to-morrow's movements I desire definite instructions, as it is not agreeable to me to be accused of disobeying orders when I have simply exercised the discretion you committed to me."

On the 30th, at 9.40, Halleck again telegraphs: "I am by no means satisfied with General Franklin's march of yesterday, considering the circumstances of the case. He was very wrong in stopping at Anandale. Moreover, I learned last night that the quartermaster's department would have given him plenty of transportation if he had applied for it any time since his arrival at Alexandria. He knew the importance of opening communication with General Pope's army, and should have acted more promptly."

At 12.20 Halleck still telegraphs, "Send the troops where the fighting is."

At 2.15 he says: "Franklin's and all of Sumner's corps should be pushed forward with all possible dispatch. They must use their legs and make forced marches."

At 1.10 P. M. of the 30th McClellan says to Halleck, "I know nothing of the caliber of Pope's artillery." In his report (Supplement to "Rebellion Record," p. 609) upon August 21st, he had telegraphed Halleck from Fort Monroe, "I have ample supplies of ammunition for infantry and artillery, and will have it up in time. I can supply any deficiency that may exist in General Pope's army."

At 10.10 P. M. of the 30th Halleck telegraphs: "All of Sumner's corps on the south side of the river not actually required in the forts should march to Pope's relief. . . . Franklin should also be hurried on to reënforce Pope."

This closes the record of those momentous days. It is a record of shuffling, of evasion; of pretending to do and doing nothing—a semblance of action without action, that Mr. Greeley, in his chapter on the subject, characterizes as "McClellan marking time."

It is a record of Halleck's continuous and persistent attempts to

succor the beleaguered forces of the nation; a record of continuous, persistent thwarting of those attempts. For four days, beginning with the 27th, fighting had been going on, and the thunder of the captains and the shouting were heard in the streets of Washington. Although portions of the Army of the Potomac reached General Pope before McClellan arrived at Alexandria, yet after that date not a man from him came upon the field of battle until the strife was over. The crisis was past, the army fell back to Washington, and came under McClellan's command. This result could not have followed had Pope been the victor, and Lee crushed upon the field of Manassas. The successful General would have been the man for the emergency, and McClellan's star would have set in obscurity. It is not, perhaps, given us to divine what might have been; but General Halleck, who supervised the whole field of operations in that important campaign, is thus questioned: "Had the army of the Peninsula been brought to coöperate with the Army of Virginia with the utmost energy that circumstances would have permitted, in your judgment as a military man, would it not have resulted in our victory instead of our defeat?"

Answer. "I thought so at the time and still think so." (1 Committee on the Conduct of the War, p. 454.)

If, in view of all these dispatches, it can be shown wherein McClellan did anything to "save the capital," he should have the full benefit of all his patriotic efforts. The reports of the Army of the Potomac while on the Peninsula, above referred to, show that during all that time he had never less than one hundred thousand men present for duty; of all this large army Reynolds's division and the corps of Heintzelman and Porter, twenty thousand five hundred strong, were the only ones that joined General Pope in time to take part in the fighting. After McClellan came on the scene of action at Alexandria, great care was taken that not another musket should go forward, except at just such time and at just such place as should effectually insure its arrival precisely too late; and under just such circumstances as should "leave Pope to get out of his scrape."

Had this been the objective point of the campaign, military genius could have accomplished no more thorough method of obtaining the desired end than that which was adopted.

This written record demonstrating as it does that the chief actor in these events purposely withheld reënforcements from his struggling countrymen, his motive for so doing is quite apparent.

The failure of the Peninsular campaign being complete and overwhelming, the only problem remaining was, how to get McClellan and his army away alive. The Government and the North being in a state of mind bordering upon despair over the great disasters, it is plain that their author was in a fair way of being speedily shelved. The new officer who had come from the West, and had shown a zeal and aptitude for fighting in strongest possible contrast with the inefficient commander of the Army of the Potomac, in case of success, could not have failed to supersede the General who, with unlimited resources at his disposal, had only insured unlimited supply of defeat.

It is not believed that McClellan was a traitor. In contemplation of his own fortunes, he had lost sight of all other interests, and that it was his premeditated and foreordained purpose that Pope should be defeated and driven back to Alexandria, that he might again come into command, like a phœnix rising from the ashes of his country's woes, is an inference not to be resisted, upon reading his own words during these days of trial. It was the inference that irresistibly forced itself upon the minds of Mr. Lincoln and his Cabinet at the time, and McClellan himself records the evidence in his own reports. It is the record of the shame, the humiliation of this great republic, when it prostrated itself in the dust before the man whom it believed to be untrustworthy, and in sackcloth and ashes besought him to be true to the national flag.

It was upon the 1st of September. The fighting was over. The wrong had been done, and it was too late now for remedy. The report states: "The President informed me that he had reason to believe that the Army of the Potomac was not cheerfully coöperating with and supporting General Pope; and that he had always been a friend of mine, and now asked me, as a special favor, to use my influence to correct this state of things." Does history relate anything comparable to this? This was the President of the United States!

The immediate presence was the awful question whether there was any United States or not! While the whole fabric was tottering under the earthquake of rebellion, the Chief Magistrate implores of the subordinate he had made famous to correct what, if true, was simple treason.

Of this situation, Draper's "History of the Civil War" says: "Though there was never purer patriotism than that which animated the soldiers of the Army of the Potomac, that army had been

brought, through the influence of officers who surrounded General McClellan, into a most dangerous condition—dangerous to the best interests of the nation—of having a wish of its own, and that wish in opposition to the convictions of the Government. In armies it is but a short step from the profession of a wish to the expression of a will. Perhaps at no period of the war were thoughtful men more deeply alarmed for the future of the nation than when they heard of the restoration of McClellan to command and recognized the unmistakable constraint under which the Government had acted."

The report continues (Supplement to "Rebellion Record," p. 617): "The President, who was much moved, asked me to telegraph to Fitz John Porter, or some other of my friends, and try to do away with any feeling that might exist; adding that I could rectify the feeling, and no one else could."

The ears tingle that hear it, but the Government was afraid of McClellan, although they were the only individuals in whose breasts he ever awakened that sentiment. Graciously complying with the Presidential request, a dispatch is sent to Fitz John Porter. It is a dispatch breathing the spirit of patriotism. It is full of noble ardor—very full, almost to bursting. Porter's reply also breathes the spirit of patriotism. It is also full of noble ardor—more so than the other one. It is so strong in these respects as to be admirable. Porter says, "You may rest assured that all your friends, as well as every lover of his country, will ever give, as they have given, to General Pope their cordial coöperation and constant support in the execution of all orders and plans." "As they have given"! Porter was the man who, with a splendid corps of fresh troops, lay all day in sight and sound of battle, without lifting a finger to the rescue, except to retreat, because he thought his friends were getting the worst of it. "As they have given!"

If this reply is read with the proper emphasis on these words, and appropriate facial expression, it is at once seen that Fitz John Porter takes rank with Artemus Ward as among the first of American humorists. It may be possible that Mr. Lincoln and his Cabinet were wrong in believing McClellan responsible for all this failure and disaster in front of Washington. The judgment of history must determine.

Pope had been left "to get out of his scrape." He had been summoned from the West to render such assistance to the Government as was possible, in extricating the Army of the Potomac and

its incompetent chief from the swamps of the Chickahominy, when the latter was calling for reënforcements "rather over than under one hundred thousand men." There is probably not an instance in the annals of war where a forlorn hope was organized and sent forth on an expedition of self-immolation under such circumstances as that which surrounded the "Army of Virginia." From the beginning its leader was thoroughly aware that the future had in store for him no success in deeds of arms. Gladly would he have avoided the duty imposed upon him, but the sacrifice was demanded, and the victim did not shrink. At no time did he entertain a thought of victory, and yet it was necessary for him to assume the *rôle* of prospective conqueror, to deceive if possible the enemy opposed to him. The game of "bluff" was adopted with premeditation as a regular part of the programme, with an entire knowledge of the obloquy that such a course must entail. It was loudly given out that an advance on Richmond was in instant contemplation, and that nothing could stay the onward progress of a force altogether adequate to the occasion. It was a *ruse de guerre*, and it succeeded; for the rebel authorities were alarmed, the hosts of the Peninsula were forgotten, and the new foe occupied the entire field of vision.

Those who choose to examine the Northern papers of July and August, 1862, can not fail to observe how the trumpets were sounded and the cymbals were clashed, with prodigious fury, in regard to the great events about to transpire. The extent of General Pope's army was forty-three thousand men, and he set forth to overwhelm Lee, whom McClellan was telegraphing as having two hundred thousand. The actual truth, as it was understood at the time, is stated in the report of the General of the Army of Virginia: "I well understood, as does every military man, how difficult and how thankless was the duty devolved upon me, and I am not ashamed to say that I would have gladly avoided it, if I could have done so consistently with my sense of duty to the Government. To confront with a small army vastly superior forces, to fight battles without hope of victory, but only to gain time, and to embarrass and delay the forward movement of the enemy is, of all duties, the most hazardous and most difficult that can be imposed upon any general or any army. While such operations require the highest courage and endurance on the part of the troops, they are, perhaps, unlikely to be understood or appreciated, and the results, however successful, have little in them to attract popular attention and applause. At no time could I have hoped to fight a successful battle with the im-

mensely superior force of the enemy which confronted me, and which was able at any time to outflank me and bear my small army to the dust. It was only by constant movement, by incessant watchfulness, and hazardous skirmishes and battles, that the forces under my command were not overwhelmed, while at the same time the enemy was embarrassed and delayed in his advance upon Washington, until at length the forces from the Peninsula were assembled for the defense of the city. I did hope that, in the course of these operations, the enemy might commit some imprudence, or leave some opening of which I could take such advantage as at least to gain a partial victory over his forces. This opportunity was presented by the advance of Jackson upon Manassas Junction; but, although the best dispositions possible under the circumstances were ordered, the object was frustrated in a manner and by causes which are now well understood."

That General Pope fulfilled the requirements of his position is shown by the correspondence between himself and the authorities. His sole mission was to delay the advance of the enemy, and so early as August 25th he says to Halleck: "You wished forty-eight hours to assemble the forces from the Peninsula behind the Rappahannock, and four days have passed without the enemy yet being permitted to cross. . . . I understood that the army was to maintain the line of the Rappahannock, until all the forces from the Peninsula had united behind that river. I have done so. I understood distinctly that I was not to hazard anything except for this purpose, as delay was what was wanted." In his reply to this, Halleck states: "Not the slightest dissatisfaction has been felt in regard to your operations on the Rappahannock. The main object has been accomplished, in getting up troops from the Peninsula." Upon the termination of the campaign, General Halleck expressed his acknowledgments of its results in terms of the highest praise.

To Pope, in his dispatch of August 31st, Halleck says: "You have done nobly. . . . I am doing all I can for you and your noble army. God bless you and it!"

Upon his return to Washington, the President, General Halleck, and the Secretary of War signified to General Pope their high appreciation of the vigor and skill with which he had conducted the campaign, and their entire satisfaction with its results. Nor did they hesitate to express their indignation at the treacherous conduct which, by withholding aid and refusing to act at the opportune

moment, had converted the promise of victory into disaster. The authorities demanded of this officer an instant official report of his operations, which was at once prepared. But in twenty-four hours the Government had changed its tone. President Lincoln would at once have decapitated McClellan, even if he had not summoned a court-martial, as was afterward done with regard to Porter, who was a mere tool. But Stanton was afraid. With all his bluster, the great War Secretary was a great coward. He was afraid that the arrest of McClellan would cause a revolt in the Army of the Potomac. And so he temporized; McClellan was restored to the command, and Pope was left to endure an undeserved obloquy.

The first collision was at Cedar Mountain upon the 9th of August. From that time until the 31st every day witnessed a series of skirmishes, battles, and marches without cessation. Hardly an hour passed without the roar of cannon and the rattle of small-arms. The enemy was flushed with victory. They had hunted McClellan to his hole upon James River, and, in the full pride of success, had turned to crush a new foe. The Army of Virginia sullenly retired, presenting at all times an undaunted front, for it was the only shield between confident rebellion and the capital of the nation.

Its leader was animated by one spirit only. Upon the last day of his fight, when pressed by the enemy in front, and in rear surrounded by those upon whom he knew he could not depend, yet game to the last, he dispatched to Halleck: "You may rely on my giving them as desperate a fight as I can force our men to stand up to. I should like to know whether you feel secure about Washington should this army be destroyed. I shall fight it as long as a man will stand up to the work." This shows nothing of the white feather.

There is now no complaining of what had been done or what had not been done. There is but one thought, but one purpose. He proposed to do his duty.

"If I save this army now, I tell you plainly I owe no thanks to you or any other persons in Washington. You have done your best to destroy this army."

This was what the other man said; and it is plain, as stated in the April article, that Pope and McClellan ought not to be named in the same century. Of course not!

The Army of Virginia is consigned to the realms of history, with the brief eulogy pronounced upon it by competent authority,

who, after reviewing the events which have been narrated, speaks thus :

"The Army of Virginia appears to have nobly performed the arduous and perilous work committed to its hands. Its campaign was brief, but marked by signal vigor and ability, and animated by a spirit which, shrinking from neither toil, exposure, nor danger, bravely struck the enemy whenever and wherever he could be found."

D. THEW WRIGHT.

THE TAXATION OF CHURCH PROPERTY.

A QUESTION of great local interest, as connected with this subject, has just been settled by a unanimous vote of both Houses of the Congress of the United States. The principles involved, however, in the local question have universal application, and are therefore of general interest.

The general tax law for the District of Columbia, passed by Congress in the year 1874, did not in express terms exempt churches from taxation. The law levied a tax on the present assessed value of all property not exempted, and contained no clause repealing former exemptions.

Under this act the Commissioners of the District created on their authority a board to assess the churches, and proceeded to enforce the tax; and where the churches declined to pay the tax, for reasons hereafter to be stated, the Commissioners advertised and sold and bought in, in the name of the District of Columbia, all of the churches of the District, with three exceptions—the aggregate value of the church property being $1,590,744, and the aggregate tax being in round numbers $46,500.

The grounds upon which the churches declined to pay the tax were:

1. The churches had no "present assessed value," had never been assessed, but always exempted; and the act imposed a tax on the "present assessed value."

2. The act contained no clause repealing the former exemptions; notably the general exemption of 1870, which "exempted church property from any and all taxes."

3. The act exempted "charitable and educational institutions," and the churches claimed to be both charitable and educational.

A committee was appointed, consisting of Rev. Drs. Pitzer, But-

ler, and Bittinger, with Messrs. Pratt, Casey, and Ballantyne, "to present the whole subject to Congress, and procure, if possible, the passage of a bill to relieve the churches from this illegal tax, and to restore the titles to the trustees or other persons who held the same at the time of the tax-sale."

After prolonged and careful consideration of the whole subject, Congress has by a unanimous vote in both Houses passed the bill "to relieve the churches from this tax, and to restore to them their titles to their houses of worship."

The present law, as agreed upon by Congress and the committee representing the churches, is to exempt "only church-buildings in actual use for purposes of worship only, together with the ground on which they stand." All other property belonging to religious corporations not thus used is taxed equally with other taxable property. Or, if the church-building is used for purposes of business gains, the property is taxed to the extent of this use and value. All church property not used for purposes of worship is taxed just as other property. These results have been reached after more than three years of investigation and study by the highest legislative body of the land, and have been concurred in by the churches of the District of Columbia.

As has been remarked, the principles involved have a general application throughout this country, and even in all countries where there are houses of worship and property belonging to religious corporations. President Grant devoted part of one of his annual messages to Congress to the discussion of this question; the Legislatures of several large and influential Commonwealths have appointed special committees to examine and report on the subject of "church taxation"; ministers' meetings and church councils have discussed the reasons for and against exemptions; the press, both religious and secular, has kept the matter before the public; and it is evident that the policy of the past is to be thoroughly reviewed in the light of the present.

The census of the United States for 1870 gives the total value of church property in the United States in round numbers at three hundred and fifty million dollars. The shrinkage in the value of property since then would be made up in the natural growth and increase of the churches in these nine years, so that perhaps the result of the census of 1880 will not differ materially from that of 1870.

This property is distributed among the larger and leading de-

nominations as follows: the Baptists hold forty millions of church property; the Methodists, seventy millions; the Presbyterians, forty-seven millions; the Roman Catholics, sixty millions; the Episcopalians, thirty-six millions; the Congregationalists, twenty-five millions; the Lutherans, fourteen millions. Various smaller bodies hold the remainder of the three hundred and fifty millions.

All kinds of religionists hold and use church property on terms of equality. In this matter all are treated alike; there are no distinctions on account of creed, color, or condition: Jews and Gentiles, Christians and Mormons, Romanists and infidels, white and black, have just the same rights and privileges. If this property were divided *per capita*, each person in the United States would have about nine dollars' worth.

It is a question, however, whether the value of church property does actually aggregate so much as three hundred and fifty million dollars.

The only true test of values is, What will the property bring in the market? and, estimated by this test, the value of all church property in the United States will fall far below the sum given in the census.

As a general rule, churches have no market value. The ground, of course, is worth about as much as that in the adjoining lot; the building is almost worthless for any other purpose than that for which it was erected, and, when sold, generally brings no more than its worth as old building-material. Of course, there are exceptions to this general rule, and some churches that can be utilized, at small cost, for other purposes, sometimes command high prices, and bring the full amount of what they cost. It is seldom that any house of worship will sell for as much as it cost to build it. And, if the census valuation is based on the cost of the churches, it is far too high. It is more than likely that all the church property in the United States would not, to-day, yield, if sold at public sale, so much as two hundred million dollars.

The real issue, however, now before the country is, not how much property do the churches own, but shall this property, much or little, be taxed, just as other property is? Will it advance or retard the interests of the State to impose a tax on church property of every description, just as other property is taxed? It should be remembered that the State in this country does not know or recognize the Church as such. Owing to the separation of state and church, trustees are elected or appointed by the churches to hold

property in trust for the use of the congregation; and these trustees are recognized by the civil authorities, and dealt with just as other trustees are. The uniform policy of the State has been to exempt these trustees from the payment of taxes, because of the uses to which the property held by them was applied.

The Church, as such, has never asked, much less demanded, of the State exemption from the payment of taxes.

The Church has never put forth the plea that it was the Church of God, that its property was used in his worship, and was not, therefore, amenable to the laws of the Commonwealth. It has never claimed that the State ought to favor any particular form of religion, or that it ought to aid in the support of any church. The Church, as such, has never advanced or urged any claims whatever on this subject; nor does she now demand of the State recognition or support. "God alone is Lord of the conscience," and every man must be absolutely free to worship or not worship. The State can not enjoin a religion on men.

It is needless to argue the question that it is detrimental to the interests of the State to permit any corporation or body of trustees to hold, free from taxation, large amounts of property *unused*, no matter for what purposes such property is held in trust.

History is filled with warnings as to the great injury inflicted upon the state by allowing, free from taxation, religious corporations to acquire and hold large amounts of real estate, not actually used for purposes of religious education and charity. In some instances one half of the landed estate of the realm has been held, free of taxes, by religious corporations or orders, and so held as to be inalienable for ever—held by *mortmain*, "the dead hand."

The danger in this country from the operation of a like principle is not quite so small as some persons think. There are large amounts of real estate and other values, not in actual use for any purpose, held by corporations and other bodies, free from taxation, with a grasp almost as tight and unyielding as the *mortmain*. And in some cities and States the political power of such bodies is so great that the civil authorities make annual appropriations for their benefit. The press of the land is to be commended for constant watchfulness of such appropriations.

In many States the amount that may be held by any religious body is carefully limited by law, and this provision seems a wise and proper one. When the State grants privileges or aid to any

one body or corporation, not granted to all, it is guilty of gross injustice and wrong.

As a matter of fact, the State, meaning by State the civil power, has from the very beginning of government in this country, and in all of its branches, whether national, State, or municipal, exempted churches from the payment of taxes; and let it be remembered that this exemption was made, not upon application or demand of the Church, but was made by the State on its own motion, of its "own free will and accord."

The right of the State to tax all property under its jurisdiction has never been questioned. No property of any sort may demand of the State, as its right, exemption from "bearing its fair proportion of the burdens of government."

But the right of the State to tax any property involves of necessity the corresponding right to exempt any property from taxation. If this proposition is denied, and the assertion is made that the State has no right to exempt churches from taxation, then it must be admitted that the State has the unchallenged and undoubted right to fix the rate at which all kinds of property shall be taxed; and it may fix the rate of church taxation at so small an amount as to be, practically, exemption.

It is also said that, if the State exempts churches from taxation, it thereby contributes to the support of religion, thus creating a union of church and state, which is contrary to all the principles of American government, and subversive of the Constitution itself.

If this assertion be true, it is most remarkable that the founders of the Government and the framers of the Constitution never once saw that they were acting upon this vicious principle when they made the exemption of churches from taxation a prominent feature in all their legislation; for this exemption has been universal from the foundation of government in this land.

Strange that the leaders in the march of civil and religious freedom, the men who fought against the union of church and state, should have crossed the Atlantic Ocean and established the very principle which in their deepest souls they cordially detested, and against which they embarked their lives, fortunes, and honor!

If the exemption of churches be unconstitutional, then it is still more remarkable that every branch of Government, national, State, or municipal, legislative, executive, and judicial, has for more than a century acquiesced in and endorsed this unconstitutional enact-

ment. What has been done for one hundred years throughout the length and breadth of this land, by all men of all parties, races, and creeds, ought to be regarded as a fair interpretation of constitutional law. Considered in this light, the exemption of churches is not unconstitutional, neither does it create or constitute a union of church and state.

And this uniform policy that has been pursued in the United States finds a sanction in the universal practice of all governments that have existed on this earth.

From the building of the city Enoch by Cain down to this day, no government has ever taxed the property used by the people for purposes of religious worship. In all lands, among all people, whether Jews or Gentiles, pagans or Mohammedans, Christians or Turks, savages or semi-barbarians, the worshipers paid no tax to the state upon what they held and used as sacred in their worship. Men have worshiped all manner of gods—Isis, Osiris, Baal, Moloch, Astarte, Buddha, Jupiter, Venus, the sun, the Nile, the cow, the serpent, the devil—but they have never been required by civil governments to pay a tax upon such property as was needful to their worship. If Pharaoh had issued an edict to tax the temple of On, the Egyptians would have seen to it that the dynasty was immediately changed. If Solomon had taxed the house of God at Jerusalem, his kingdom would have been dismembered before the reign of Rehoboam. If Cæsar had sent his deputy to assess and tax the temple of the great Ephesian Diana, a wiser man than the "town clerk" could not have appeased the people.

In the light of this universal usage, and the unchallenged exemption of churches by legislation in this country since its first settlement, it is an interesting question legally to what extent have the churches acquired vested rights which all courts are bound to respect and will respect.

If no *ex post facto* laws can be enacted, if vested rights have been acquired under contracts legally made, is it competent for legislative bodies to tamper with, much less to destroy, sacred rights that have been thus secured, and some of them enjoyed for more than a hundred years?

If certain persons under a special charter, or a general law of incorporation, invest money, and have it held in trust for certain uses, and, by compliance with the letter and spirit of the law, secure for themselves and successors rights of any kind, is it competent for subsequent legislation to divest them of these sacred rights?

The Supreme Court of the United States would scarcely enforce a tax upon any house of worship in any city or State, if, at the time the house was built, there was in force a law exempting such houses of worship from taxation. The decision of the Court in such a case, if carried up on appeal, would be more than usually interesting reading.

The question has doubtless suggested itself already, Upon what principle and for what reasons has church property been thus universally exempted from taxation? Why has civil government in all ages and among all people exempted from taxation that property of its citizens held and used for purposes of religious worship?

The origin of this exemption is, doubtless, to be sought and found in the imperishable and indestructible religious element of man's nature. Whatever else man may be, he is a religious creature —he has a god of some kind, and a worship of some kind. And perhaps it was an instinctive feeling of this religious element that whatever was used in the worship of the gods was, by that very use, separated from the ordinary laws and usages of business and property; and to subject such property to the ordinary laws of taxation seemed almost, if not altogether, sacrilege.

But it is not the purpose of this article to enter upon this line of investigation, but to answer, if possible, the specific question, "Upon what principle can the civil authority in the United States justify its exemption of church property from taxation?"

If the State has the right to tax or to exempt from taxation any and all property, then it may be assumed as almost an axiom *that, whenever and wherever the exemption of certain kinds of property will be of more benefit to the State than the taxation of such property, it is not only the right but it becomes the duty of the State to make the exemption.*

The State has always exempted from taxation other classes of property than churches—notably, reform-schools, and institutions for reclaiming the young of both sexes from criminal lives; hospitals for the aged, the blind, the deaf and dumb, the indigent, the insane; colleges and seminaries; and the burial-places of the dead.

No clamor has been raised because this class of property has been free from the payment of taxes.

When benevolent men and women came forward, and donated lands and money to erect houses and provide funds, so that the youth of the land might have an opportunity to return to the paths

of virtue; so that the blind, the indigent, the homeless, and helpless might have food, raiment, and shelter; so that the dead might rest in their graves free from the tax-collector's visits—when property was thus given and used, all men felt that the founders of such institutions and the property thus given were both "bearing their fair proportions of the burdens of government," and that it would be unjust and brutal to subject such property to the ordinary laws of taxation. It was felt by all men to be the duty of the Government to encourage such blessed helpers and helps by exempting such property from taxation.

It is lightly said, in these days, "Oh! tax all property of every kind alike." Will the men who thus speak stand in the presence of any intelligent audience and advocate the taxation of some favorite orphan asylum, where scores and hundreds of fatherless and motherless children are watched over with the tenderest love and most incessant care? Will these men stand before the living, and argue and urge that the old graveyard, hoary with age and moss and faded tombstones, shall pay its annual tax into the coffers of the State? Will these men plead that the schools founded by noble philanthropists for public education shall be taxed equally with the brewery and the distillery? Will these men teach that the homes where the aged of both sexes, indigent and almost friendless, are sheltered, shall be taxed equally with beer-gardens and billiard-saloons? Which will yield the largest benefit to the State, to the welfare and prosperity of all the citizens, to tax or to exempt from tax this class of property? Does not every intelligent man know that all such property is bearing its proper part of the burdens of government, indirectly, it is true; and that the exemption is worth far more to the State than any tax would or could possibly be worth?

It has been recognized and admitted, by thoughtful men of all parties and creeds, that it was a wise and righteous thing for the State to exempt from taxation property given and used for purposes of public reformation, public charity, and public education. If patriotic and charitable citizens could be found who would give lands, buildings, and moneys, for the education, the reclamation, and the relief of the ignorant, the criminal, and the indigent classes of the community—saving thereby to the State thousands of dollars annually in taxes to aid and relieve these very classes of persons—then it would be the duty of the State to encourage these patriotic citizens, at least, to the extent of exempting such property from

taxation. Were it not for the existence of such institutions in all parts of the land, it is easy to see that the general taxes of the people would be largely increased, in order to fill the places occupied by these institutions, and to perform the educational, reformatory, and charitable work now done by them. All such property does bear its just proportion of the burdens of government, and no lengthy argument is needed to vindicate the wisdom and righteousness of its exemption from taxation. This policy of exemption has been one of the most potent causes in increasing the number and efficiency of such institutions. Let the question be seriously pondered, Will a tax on hospitals, asylums, reform-schools, etc., increase or diminish the revenues of the State? and perhaps but one answer will be given by those who think, and that answer will be, "A tax on such property will not add to but will decrease the revenues of the State."

It would seem to be the highest wisdom and the best policy, on the part of the State, to exempt from taxes property used for purposes of education, reformation, and charity.

And if this be so, then the inquiry is raised, Does church property belong to either one of these categories, or does it include, in fact, all three? Is the Church an institution of reform, of education, and of charity? Is church property used for purposes of reformation, of education, and of relief?

Every church in this land is, to a greater or less degree, a reform-school—is a place where efforts are unceasingly made to win back men from vice and crime, and where all the sanctions of God, of moral law, and eternal retributions, are brought to bear upon the minds and hearts of men, women, and children, the old and the young, to save them from crime, and to keep them in the paths of truth and virtue. If it be alleged that the Church, both in its members and ministers, has furnished some of the most notorious examples of criminality, the fact is admitted; but two comments are made: 1. These persons became criminals not because of, but in spite of, the teachings of the Church; and, 2. The number has been amazingly small: the proportion of ministers, out of sixty thousand persons who were tried and convicted of crime during the past year, was *one fifty-seventh of* ONE *per cent.*

It is simply impossible to estimate the material benefits that accrue to the State from the influence of the Church in repressing crime and in reforming men. If this influence were entirely withdrawn from any community, property of all kinds would imme-

diately become worthless. Few men of sense would have invested in property in Paris in the time of the ascendancy of the Commune; or in Zululand during Cetawayo's reign. Patriotic, benevolent, and lent, and God-fearing men have freely given lands and means to erect houses whence, day after day, an immense influence issues forth to repress lawlessness and to reclaim the wrong-doers; it is wise and right for the State to say, This property thus used is bearing a fair proportion of the burdens of government, and it shall be free from taxation.

Besides this, the Church is, by the very law of its existence, a charitable institution. How much is saved to the State each year, in the matter of taxes to support the poor, by the charities of the Church, we have no means of estimating accurately. There are over sixty thousand churches in the United States, and it is safe to say that, on an average, at least one person would be supported in whole, or in part, by each one of these churches; true, some of these churches would give nothing, but others would maintain scores of indigent persons; so that we have the churches of our land cheerfully supporting each year at least sixty thousand persons; relieving, by this immense amount, the State from additional taxation to support its poor.

Another matter to be carefully considered is that the Church is, *par excellence*, an educational institute. Her commission is, "Teach the nations."

Consider that to-day the Church has furnished for the use of the public, without the cost of one cent to the State, sixty thousand houses, where sixty thousand teachers—many of them trained and accomplished men, many of them of the very highest order of ability—teachers all of whom are supported entirely by the Church, without one dollar of aid from the Government; and that these sixty thousand men devote all of their time, year after year, to the education of all who choose to come, in the highest and best of all knowledge.

Add to this the further fact that the Church has gathered into her one hundred thousand free Sabbath-schools not less than six million scholars, and not less than six hundred thousand teachers, and has furnished to these scholars and teachers five million books for free circulation, besides catechisms, lesson-helps, papers, reviews, and magazines innumerable. These figures give some faint idea of what the Church is doing as an educator in this country; and let it be remembered that these schoolhouses, these

teachers, these books, these papers, are all given to the free and unrestricted use of the public, without the cost of one cent to the State.

The State imposes on her citizens heavy taxes to erect her public-school houses and to sustain her public-school system, and all school property is exempt from taxation. Here is an immense free-school system for the benefit of the entire public, conducted without expense to the State, and yet unthinking men flippantly exclaim, "Oh, yes, tax churches, tax all property alike!" When forty thousand Sabbath-school teachers and scholars march annually in Brooklyn at their May anniversary, let the observing bystander ask, "Why should this Brooklyn school system, so free, so beneficent, be taxed?"

If churches are to be taxed, then let it be understood that the axe must be laid also to the root of many other trees.

If reform, charitable, and educational institutes are exempted from taxation, then we ask upon what principle of equity and righteousness shall the Church, which combines in herself all three of these features in a preëminent degree, be subjected to taxation? Nay, is not the Church, in some sense, the mother of all reform and charitable institutions, of all hospitals and asylums that exist? Why shall the daughters go free, and the mother of them all be taxed?

Some industries and institutions are esteemed of so much benefit to the State that not only are they exempted from taxation, but "protective laws" are enacted to encourage and foster them. And thus the State virtually pays a bonus for their existence and support; but there is no general outcry at the iniquity of this procedure. And yet there are many who exclaim at the injustice of the State when churches, the most beneficent of all institutions, are simply exempted from the payment of taxes.

Churches are generally built for the benefit of the public by the gifts of liberal-minded and patriotic citizens; they are not built for individual gain or profit, they are not conducted for the purpose of money-making; they are open to all who choose to come. The money necessary to erect and sustain them is donated to the cause of God and man; it passes away entirely from the donors; the title is vested in trustees for uses of worship, for the well-being of the whole public; and every man, whether he recognizes the fact or not, has an interest in every church in the land. The Church has never in this country asked aid from the State; on the

contrary, the State has received, indirectly it is true, thousands of dollars annually from the Church in the support of the Government.

As has been already indicated, there is abundant room for reform on this subject. Let all church property held for speculation or business gain, all property not in actual use for religious purposes, be subjected to taxation; let the State withdraw all aid heretofore given to sectarian institutions; let the amount of property to be hereafter held by any religious corporation be limited by express legislation; let no special charters, containing special privileges, be granted, except in a very few cases, where the equities are beyond dispute; let the Church learn to build less costly houses of worship; let her abolish the pew system, and make all sittings, as they ought to be, absolutely free to the general public; let the masses be convinced that the Church is sincerely and earnestly seeking their good; let the Church cease from all attempts to exercise political influence and to dictate the policy of the State in secular matters, and we shall come much nearer to a solution of this question that will be satisfactory to all concerned.

Unless we are much mistaken, the principle adopted by the Federal Legislature will be generally adopted, viz.: Tax all church property not in actual and exclusive use for purposes of public religious worship; exempt from all taxation all property that is thus held and used.

The following brief propositions contain an imperfect summary of the subject:

1. The value of church property has been largely over-estimated.
2. It has been the uniform policy of the State in this land to exempt churches from taxation.
3. The Church has never demanded this exemption, but the State has spontaneously granted it.
4. The exemption was granted upon grounds of public policy, as being for the best interests of the Commonwealth.
5. The Church does indirectly bear its fair proportion of the burdens of government.
6. The exemption of churches does not violate the letter or spirit of the Constitution.
7. The Church is a reform, charitable, and educational institute; and if, as such, she is taxed, then must other such institutions be taxed.

8. The Church by her schools and charities saves to the State annually thousands if not millions of dollars.

9. Churches are not erected for purposes of gain, but for the general good.

10. If the uniform policy of the entire human race on this subject is to be reversed, it ought to be after mature deliberation, and for good and sufficient reasons.

A. W. PITZER.

RECENT PROGRESS IN ASTRONOMY.

It is impossible in this place to give any adequate account of recent astronomical papers of a mathematical character. Hence it is sought simply to submit brief analyses of some of the more generally interesting memoirs which have been published within the last few months. Even the list of these can not be made complete.

Decidedly the most important recent contribution of observing astronomy is the "Uranometria Argentina"* of Dr. Gould. This is the first astronomical publication of the National Observatory of the Argentine Republic.

One of the first objects of Dr. Gould, on the establishment of the new observatory in 1870, was the making of a uranometry of the southern sky which should contain the position and magnitude of every star visible to the naked eye at his station.

The model on which it is made is the celebrated "Uranometria nova" of Argelander, of Bonn, which was published in 1843. This latter contains 3,256 stars, from the first to the sixth magnitude, which are to be seen above the horizon of Bonn. Its magnitudes are expressed in *thirds* of a whole magnitude, and Argelander's scale, so established, has served for a standard in all observations in the northern hemisphere. Dr. Gould's problem was to extend this enumeration over the whole southern sky, keeping accurately to the standard set by Argelander. This is by no means an easy task, as the *minimum visibile* at Cordoba was found to be not the 6·0 magnitude, but 7·1; that is, stars can still be seen at Cordoba which have less than four tenths of the light of the faintest of Argelander's stars. This extraordinary transparency of the atmosphere required the extension of Argelander's scale downward, and that this was accomplished successfully is shown by a comparison of the

* "Resultados del Observatorio Nacional Argentino." Vol. i, "Uranometria Argentina," Buenos Aires, 1879, 4to, with Atlas.

magnitudes of all the stars which are common to the two uranometries. The mean difference is rather less than one tenth of a magnitude. The method of settling the standard was to select from the "Uranometria nova" a belt of stars which had the same altitude at Bonn and at Cordoba. The 722 stars of this belt were observed by the four assistants at the southern observatory (Messrs. Rock, Thome, Davis, and Hathaway), and those stars for which their estimated magnitudes were precisely the same were chosen for standards. Thus, a number of stars of each magnitude as 3·00, 3·33, 3·66, 4·00, 4·33, etc., became types to be constantly referred to. From these types a number of others in a zone near the south pole (and hence constantly visible) were constructed. The process of observation consisted in referring each star in the heavens to this set of types, so that its magnitude could finally be determined upon. This was done by the four observers independently, but often in duplicate, and so well were the standards fixed that each observer's comparisons differed from the mean of all four by quantities very much less than a tenth of a magnitude. It should be said that the magnitudes in the southern uranometry are given to tenths.

In all, there are 10,649 stars visible to the naked eye at Cordoba. Of these, 8,198 are as bright or brighter than the 7·0 magnitude, and these alone are given in the catalogue and in the maps. Of these 10,000 stars, more than 46,000 observations were made. In the progress of the work quite a number of variable stars were detected, of each of which a full history is given in the notes. Indeed, Dr. Gould's firm conviction is, that "stellar variability is by no means an exceptional phenomenon, but that at least one half of the stars above the 7·0 magnitude vary by amounts which careful observation can not fail to detect."

An atlas of fourteen charts accompanies the catalogue, and gives an exact pictorial representation of the state of the sky at the epoch of the work. Besides giving a representation of the isolated stars, the shadings and gradations of the milky way are given with the greatest detail from repeated observations and revisions. By no means the least valuable part of the work is the discussion of the course of the milky way throughout the whole sky. The course of the galaxy is now, and only now, known with precision. The data of this and preceding uranometries are discussed by Dr. Gould with reference to the question of the distribution of the stars in space, starting from the assumption that, on the whole, stars are equally scattered. Dr. Gould finds that there is a marked excess

of the stars from the first to the fourth magnitude. Furthermore, he finds that there is in the sky a zone or belt of bright stars as marked as the milky way, and that all the bright stars are distributed more symmetrically with respect to this belt than with regard to the milky way itself.

From these facts Dr. Gould concludes that "our own solar system forms a part of a small cluster distinct from the vast organization of that which forms the milky way." This cluster may perhaps be comparable with that of the Pleiades, since by a rough estimate it would seem to consist of about 500 stars. It is situated nearly in the plane of the belt of bright stars.

No more valuable work than this has been given to astronomy within a decade; and it will be a source of pride to Americans to find such important contributions coming from one of their countrymen in the southern hemisphere, with which the name of Gilliss was already indissolubly associated.

There are no marks about the work itself which would show that it was done in a community in about the state of Europe during the dark ages, and it will add not to the value of the work but to the credit of the workers if one remembers that this is strictly the case.

It has long been known to students of the philosophical writings of Emmanuel Swedenborg that he was the author of an elaborate theory of the origin of the solar and stellar system, which was the prototype of those now received. The facts in the case are briefly these: In his "Principia," published in 1734, a complete system of cosmogony was proposed in which the genesis of the planets and satellites from a primitive nebulous mass was maintained. The details of the processes imagined are given and illustrated with drawings in the fullest manner. Its resemblances and differences with the nebular hypothesis of Laplace we shall consider later. The question is now one of history. Laplace, in announcing his own theory in the "Exposition du Système du Monde" (1809), (note vii), quotes the theory of Buffon (1749), introducing it by the phrase "Buffon est *le seul que je connaisse*, qui, depuis la découverte du vrai système du monde, ait essayé de remonter à l'origine des planètes et des satellites." A large part of this memorable note is given up to the refutation of Buffon's theory, which, though ill grounded according to Laplace, still serves as a point of departure for him, and without which the nebular hypothesis, as we know it, might not have had an existence. In the original statement of his own

theory Buffon gave no hint that he was acquainted with any previous one, but a mere chance has given us light on this question.

Mr. Bohn, the celebrated publisher of London, had in his possession about 1840 a copy of Swedenborg's "Principia," containing Buffon's own autograph, and bearing the marks of use. There is no doubt, when the essential points of the three systems are considered, that the suggestions of the system of Swedenborg (published fifteen years before Buffon's) influenced Buffon largely, and that the ideas of Buffon, together with the reflections on the construction of the heavens by the elder Herschel, led Laplace to the final form of his nebular hypothesis.

To complete the historical portion of this sketch, it should be said that Kant published his "Theorie des Himmels" in 1755, twenty-one years after the "Principia," but probably without obligation to it. While these facts have long been known to students of Swedenborg, they have been generally ignored by astronomers until the publication of M. Nyrén's notice on the subject.*

The theory of Swedenborg is too elaborate to be fully stated here. The essential points of it are given by M. Nyrén. A few extracts from Swedenborg's own work, in addition to those given by M. Nyrén, may better illustrate his position. He is a believer in vortices, not exactly like those of Descartes, but there is no ambiguity in his description of them: "The magnetic sphere, with its vortices, is a type and small effigy of the starry heaven. . . . Every particle of the magnetic element spontaneously endeavors to enter into a vortical motion, if there be only an active center round which it can gyrate. . . . There may be as many spiral vortices as there are active centers. . . . The sun [and each star] is an active center. . . . All things are similar to one another: . . . in the sphere of the magnet there are spiral vortices, in like manner in the sidereal heavens. . . . The second elementary particles are most highly compressed near the solar active space. . . . In this manner the number and quantity more and more increase, by reason of the successive compression of the elementaries, and also condense themselves round the solar space. The finites thus concrete into an immense volume, and crowd around and inclose the sun in such a manner as to form an incrustation. . . . Nevertheless, this crust which is formed around the sun is rotated in a certain gyre. . . . This crustaceous matter, being endowed with a continual gyratory

* "Ueber die von Emmanuel Swedenborg's aufgestellte Kosmogonie." M. Nyrén, "Vierteljahrsschrift der Astron. Gesell," Bd. 14.

motion round the sun, in the course of time removes itself farther and farther from the active space ; and, in so removing itself, occupies a larger circle of space, and consequently becomes gradually attenuated till it can no longer contiguously cohere, but bursts in some part or other. . . . The solar crust being somewhere disrupted on the admission of the vortical volume, collapses upon itself, and this toward the zodiacal circle of the vortex, so that it surrounds the sun like a belt or broad circle. This belt, which is formed by the collapse of the crustaceous expanse, gyrates in a like manner ; removes itself to a farther distance ; and, by its removal, becomes attenuated till it bursts and forms into larger and smaller globes ; that is to say, forms planets and satellites of various dimensions, but of a spherical figure."

All these successive stages are, in Swedenborg's original, accompanied with woodcuts which make his imagined processes plainer, and do away, in some manner, with the repulsive nomenclature which he adopted, and which can not be explained here.

An examination of the two systems of Laplace and Swedenborg leads to the result that one is the exact converse of the other. With Laplace, there is a primitive nebula, which in shrinking abandons rings of matter. These consolidate into planets. With Swedenborg, the rings or zones are thrown off from the sun in a tolerably solid condition ; and they contain, when thrown off, spherical masses in an advanced state of consolidation. Laplace's evolution takes place in order from the circumference to the center, so that the stuff of which the outer planets is made has the longest existed separate from the sun. With Swedenborg, it is the reverse. The recent researches of Mr. George Darwin on the evolution of the moon are most interesting in this connection. According to the results of a series of papers lately delivered to the Royal Society, the moon was primitively a solidifying body closely attached to the sphere of the earth—even touching it—and revolving with the earth in a few hours in the plane of its equator. As time went on, the variations in the time of revolution, in the inclination of the orbit, etc., took place until the present state was reached. If we must accept Mr. Darwin's late conclusions, it appears that they cohere much better with the hypothesis of Swedenborg than with that of Laplace ; and this fact, no less than the historical interest attaching to the origin of the nebular hypothesis, makes M. Nyrén's paper of importance.

For some years it has been generally received that the star α

Ursæ Majoris periodically changed its color from yellow through red to orange, etc., every thirty-two days. This supposed discovery was made in 1867 by Klein, and has been confirmed or at least not disproved by several subsequent observers.

The question is now tolerably well settled through a series of observations by Sâfarik,* who has chosen three other stars to observe simultaneously with this. He has shown that the variations in *α* Ursæ are no greater than in the case of these three stars, which are pretty certainly constant in color, and he gives it as his opinion that *α* Ursæ must be considered also as of a constant color unless we are willing to admit that all stars are variable in tint in short periods of time. This result is of more importance than at first sight appears, as we have now no well-authenticated case of variation in color separate from variation in brilliance.

Dr. Gyldén,† of Stockholm, has recently published a mathematical investigation in which he shows the possibility of explaining the observed variation in the light of stars upon pure mechanical principles. He takes as a basis the idea that the surfaces of such stars are covered in parts with a kind of crust or *slag* which gives out less light than the remaining parts of the surface which are glowing. Further, he supposes these stars to be rotating on their axes, and he shows that such a rotation will account for all the phenomena, particularly as the axis of rotation will itself be changed from time to time by the different disposition of the floating masses on the surface.

The Harvard College Observatory‡ has continued its researches on the photometry of stars and planets, and has published several important volumes on this subject within a few years. The results of these can not be given here, but a plan now in operation there should be described. Professor Pickering proposes to determine the relative amount of light of all stars visible at Cambridge, and has devised a most ingenious and effective piece of apparatus for the purpose.

This is an horizontal telescope which is directed to the west, and has two objectives. In front of each is a reflector. By means of

* "Ueber den Farbenwechsel von α Ursæ Majoris, von A. Sâfarik." Vierteljahrsschrift der Astron. Gesell. 1879. Pp. 367.

† H. Gyldén: "Versuch einer mathematischen Theorie zür Erklarung des Lichtwechsels der veränderlichen Sterne." 4to. Helsingfors, 1880.

‡ Harvard College Observatory: "Report of the Committee of the Overseers," etc. Cambridge, 1879. 8vo.

one of these the pole-star is constantly kept in the field of view as a standard of reference, while by means of the other any star on the meridian may be compared with it. To determine the effect of atmospheric absorption, a special list of circumpolar stars is being observed. In this way Professor Pickering intends to compare every star visible at Cambridge with Polaris, and thus to make an accurate photometry of more than three fourths of the heavens.

The whole subject of the nature of the phenomena of solar eclipses is in so undecided a state that even those who are most familiar with it are conscious of their incomplete knowledge of the data. A general review of the evidence on special points has been wellnigh impossible. Like all comparatively new problems, the different branches of the research have been developed in quite an irregular way. On some lines of research our knowledge is very considerable; on others, we have scarcely any trustworthy information.

This was specially a hindrance in the study of the phenomena of solar eclipses, because it is just here that we may hope for striking advances within a few years. And it is necessary, in order to plan our future work, to know what has already been settled, and along what lines of study results are to be sought. A recent publication of Mr. Ranyard's,* on the phenomena of "Solar Eclipses," is intended to meet these difficulties. Mr. Ranyard has collected in Volume XLI of the "Memoirs of the Royal Astronomical Society" (792 pages, 18 plates, and a great number of woodcuts) all the accounts of solar eclipses which have been published from the earliest times up to 1878.

Each account is cut up into parts, as it were, and the matter of each part is inserted in its proper chronological order, under one of forty-four headings, chosen by Mr. Ranyard with great care. Each heading constitutes a chapter, and the chapters are arranged about in the order in which the phenomena of which they treat occur. Thus, the chapters relating to the phenomena near first contact have for titles: Chapter VII. "The Cusps of the Solar Crescent seen as colored"; Chapter VIII. "The Moon seen as red before Totality"; Chapter IX. "Shadow-Bands"; etc., etc. Perhaps the most important chapters are numbered XLI, XLII, XLIII, XLIV: On "The Brightness of the Corona," on "Polaroscopic and Spec-

* Memoirs of the Royal Astronomical Society, vol. xli. "Observations during Solar Eclipses," by A. C. Ranyard. London, 1879. 4to.

troscopic Observations," and on "Photographs and Drawings of the Corona," respectively. The last chapter consists of 238 pages, and contains a reproduction of every important modern drawing. A very good feature of the woodcuts is that the axis of the sun is made vertical on the page, and the sun's vertex is marked also. The plates relate to the spectrum of the corona, etc., and to the photographs, etc., of the total phase. We are glad to notice that due credit is here given to Dr. Busch, who first took a daguerreotype of the corona in 1851, at Königsberg. The very varied material contained in the volume is made available by an elaborate subject and author index, and the chief problems which Mr. Ranyard set to himself are resolved. These were: 1. To give in the order of time all the important observations on each of the main topics of study; 2. To enable the work of any particular individual to be examined; and, 3. To enable each solar eclipse to be studied by itself if desired.

The work has required about nine years for its preparation, and is practically complete. We have simply to add to the data there given, and need never go back of it. In general, there is no complete discussion of the results to be derived from each chapter, and this reserve seems wise. In some cases the necessary conclusions are pointed out, always, it seems, with moderation. It is an unfortunate consequence of this kind of semi-bibliographical work that it will be severely criticised. Each chapter will appear inadequate to the specialist in the subject of which it treats. There can be no doubt but that Mr. Ranyard has succeeded in his most difficult task, and that this publication will forward the solution of the most important questions involved, in a very marked way. The work comes at exactly the right time, and satisfactorily fills its place.

The three periodic comets whose orbits have been the most carefully investigated are Encke's, Winnecke's, and Faye's. Their least distances from the sun are $\frac{34}{100}$, $\frac{78}{100}$, $\frac{162}{100}$ of the earth's distance respectively. It is well known that Encke's original researches indicated the existence of a resisting medium in space which, by opposing the motion of the comet through it, gradually shortened its period of revolution. All of Encke's computations were repeated by Dr. von Asten, and his general results confirmed. Dr. Möller, of Lund, executed a like work for Faye's comet, and found no such change in its period, and the conclusion was that, granting the existence of a resisting medium, it did not extend so far as one and a

half times the earth's mean distance. Dr. Oppolzer has just concluded a similar investigation for Winnecke's comet.* He finds that its motion is altered in the same way as that of Encke's comet, and the value of the resisting force is found to be almost the same as that found by Encke. Dr. Oppolzer goes further, and shows that, granting the existence of such a resisting force, its effect upon the motion of Faye's comet would be so small as to be confounded with uncertainties of the computed perturbations. The existence of the resisting medium is now rendered quite probable. The question will be definitively settled by computations now in progress upon the other comets of short period.

The buildings for the new observatory of the University of Strasburg † have been completed, and a description and plates of them made by the director, Dr. Winnecke. The principal instruments are :

1. A meridian circle by Repsold ; aperture 162 mm. (6·4 inches).
2. An altazimuth by Repsold ; aperture 136 mm. (5·4 inches).
3. A refractor by Merz ; aperture 487 mm. (20·2 inches).
4. An orbit-sweeper by Repsold ; aperture 163 mm. (6·4 inches).

There are three buildings—one large one, containing the residences of the astronomers, and two smaller.

On the main building is the large iron dome, some thirty-nine feet in diameter. There are two novelties in its construction : First, the shutters to the dome are made in two parts and extend from horizon to horizon. They are opened symmetrically by screws, and leave the whole 180° open at once. Secondly, the dome, which weighs about ninety thousand pounds, is turned by means of heavy weights which are wound up from time to time as required. A touch from the observer will release these, and their fall will turn the dome right or left as required. The working of this dome will be attentively regarded, as most of the difficulties of such structures appear to have been successfully avoided.

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* Astronomische Nachrichten.

† "Die neue Strassburger Universitäts Sternwarte, von A. Winnecke, Vierteljahrsschrift der Astron. Gesell," 1879, p. 328.